

# North Carolina Department of Transportation Statewide Planning Branch Systems Planning Unit

MAR 2 4 2011

Thoroughfare Plan

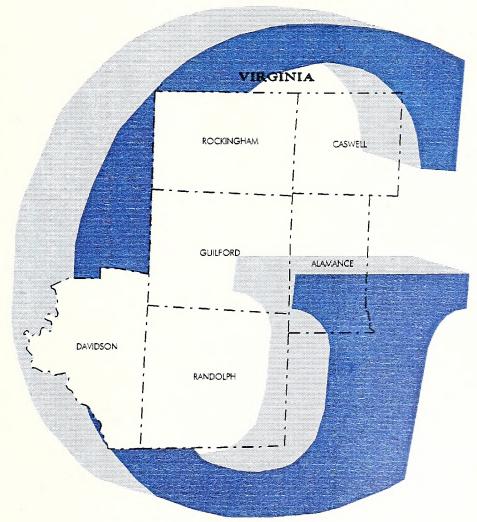
for

# REGION G

ALAMANCE COUNTY – CASWELL COUNTY

DAVIDSON COUNTY – GUILFORD COUNTY

RANDOLPH COUNTY – ROCKINGHAM COUNTY



December, 1994



#### THOROUGHFARE PLAN

FOR

# REGION 'G', NORTH CAROLINA

# Prepared By:

The Statewide Planning Branch Division of Highways North Carolina Department of Transportation

In Cooperation With:

Piedmont Triad Council of Governments

The Federal Highway Administration United States Department of Transportation

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#### I. INTRODUCTION

A properly functional transportation system will provide the means for fast, convenient, and safe transportation of people and goods from one place to another. It is imperative that the system not only meet existing travel demands, but also progress with the regional growth. This report contains the thoroughfare plan for Region 'G'. Its objective is to provide a system of thoroughfares to serve the existing and future traffic needs of the Region for the next eighteen years.

Region 'G' has never had a thoroughfare plan. It is the desire of the Piedmont Triad Council of Governments (PTCOG) to have a thoroughfare plan that will serve as a planning tool for future growth in traffic and development. This report was prepared by the North Carolina Department of Transportation, in cooperation with PTCOG.

The proposed thoroughfare system was developed following the basic principals of thoroughfare planning as described in Chapter II of this report. The thoroughfares were located based on field investigations, population distribution, existing and anticipated land use, insufficient present and future roadway capacities, and topographic conditions. The plan advocates those improvements that are felt to be essential for proper traffic circulation within the current planning period. The plan does not modify the proposed municipal thoroughfare plans that are already developed or are being updated for the municipalities of Greensboro, Highpoint/Archdale/Thomasville, Gibsonville, Burlington, Reidsville, Eden, Madison/Mayodan, Yanceyville, Asheboro, Randleman, and Lexington.

This study has focused primarily on the analysis of the Regional Arterial System. Trend Line Analysis was used to project traffic for the design year. Since its inception, a new study has been initiated by the Triad and the North Carolina Department of Transportation which will analyze not only these facilities but the lower classified facilities as well. The methodology for present and future traffic analysis will be based on the Gravity Model. This method involves an extensive compilation of housing and employment data for the Region. As a result, this report will be used for informational purposes only.

#### II. REGIONAL THOROUGHFARE PLANNING PRINCIPALS

# Purpose of Planning

There are many benefits to be gained from regional thoroughfare planning, but the main objective is to assure that a multi-county road system will be progressively developed to adequately serve future travel needs in a safe, efficient and economical manner. Thus, the main objective in regional thoroughfare planning is to make provisions for street and highway improvements so that, when the need arises, feasible opportunities to make improvements exist.

A twenty year design period is used in the planning and analysis of a thoroughfare system. The design period for this Region 'G' Thoroughfare Plan is 1992-2010, with a design year of 2010. Arterial Average Daily Traffic (ADT) volumes are projected (based upon historic population, existing ADT, and motor vehicle registration growth rates) and compared to current and design year highway capacities. Arterial highway capacity is based on providing a level of service of D, which is the lowest allowable level of service for existing arterial highways. Any highway section having a volume to capacity ratio greater than or equal to 1 is inadequate and a candidate for improvement.

All growth factors in this report were calculated using the compound interest formula:

 $i = ((F/P)^{(1/n)}) - 1$  where: i = growth rate F = future valueP = present value

n = time period in years

Streets, roads and highways have two primary functions: they provide traffic service and land service. When combined, these two services are basically incompatible. This conflict will not be serious if both traffic and land service demands are low. However, when traffic volumes are high, access conflicts created by uncontrolled and intensely used abutting property result in intolerable traffic flow friction and congestion.

There are two major benefits derived from thoroughfare planning. First, each road or highway can be designed to perform a specific function and provide a specific level of service (LOS) (normally LOS of C for new roadway). This permits savings in right-of-way, construction, and maintenance costs. It also protects residential neighborhoods and encourages stability in travel and land use patterns. Second, local officials are informed of future improvements and can incorporate them into planning and policy decisions. This will permit developers to design subdivisions in a non-conflicting manner, direct school and park officials to better locate their facilities and minimize the damage to property values and community appearance that is sometimes associated with roadway improvements.

# Efficiency

The improvement of the efficiency of existing facilities can be achieved through: (1) improving the **system efficiency**; and (2) improving the **operational efficiency** of thoroughfares.

(1) <u>System Efficiency</u> - A more efficient system can reduce travel distances, time, and cost. Improvements in system efficiency can be achieved through the concept of classification of streets and development of a coordinated major street system.

Classification - There are many different ways in which to classify a street system. The Thoroughfare Plan uses a system which is based on streets performing two primary functions -they provide traffic service and land service. See Regional Thoroughfare Planning Concept (Pg II-6) for further discussion.

Some of the other ways of classifying street systems include: by funding source; as radial, circumferential or cross-town; or by cross-section.

(2) Operational Efficiency - A street's operational efficiency is improved by increasing the capability of the street to carry vehicular traffic and people. In terms of vehicular traffic, a street's capacity is defined as "the maximum number of vehicles which can pass a given point on a roadway during a given time period under prevailing roadway and traffic conditions." Capacity is affected by the physical features of the roadway, nature of traffic, and weather.

Physical ways to improve vehicular capacity include street widening, intersection improvements, improving the vertical and horizontal alignment, and eliminating road-side parking.

Other operational ways to improve street capacity include:

- (1) **Control of access** A roadway with complete access control can carry over two times the traffic handled by a non-controlled access street.
- (2) One-way operation The capacity of a street can be increased 50% or more, depending upon turning movements and overall street width, by initiating one-way traffic operations. One-way streets can also improve traffic flow by decreasing potential traffic conflicts and simplifying traffic signal coordination.
- (3) Reversible lanes Reversible traffic lanes may be used to increase street capacity in situations where heavy directional flows occur during peak periods.
- (4) **High Occupancy Vehicle (HOV) Lanes** High occupancy vehicle lanes may be provided on freeways and other roadways for the exclusive use of buses and other high occupancy vehicles so

they can bypass peak period congestion on the remaining lanes. Increases in ridesharing can be gained from this option when the time-savings are significant. HOV facilities are usually incorporated into existing highway right-of-way where width and lateral clearances may be limited. (1)

- (1) <u>Guide for the Design of High Occupancy Vehicle</u>
  <u>Facilities</u>, American Association of State Highway and
  Transportation Officials, 1992, pg 1.
- (5) **Signal phasing and coordination** Uncoordinated signals and poor signal phasing restrict traffic flow by creating excessive stop-and-go operation.

Altering travel demand is a third way to improve the efficiency of existing streets. Travel demand can be reduced or altered in the following ways:

- (1) Encourage people to form carpools and vanpools for work and other trips. This reduces the number of vehicles on the roadway while increasing the people carrying capability of the street system.
- (2) Encourage the use of mass transit, bicycles, and pedestrian travel.
- (3) Encourage industries and business to stagger work hours or establish variable work hours for employees. This will reduce travel demand in peak periods and spread peak travel over a longer time period.

# Application of Thoroughfare Planning Principles

The above descriptions are of an idealized major thoroughfare system. In actual practice, thoroughfare planning is done for established areas and is constrained by existing land use and street patterns, public attitudes, and expectations of future land use.

# Highway Functional Classification Overview

The NCDOT functional reclassification of roads in Region 'G' is based upon a US DOT publication entitled: "Highway Functional Classification: Concepts, Criteria and Procedures" (revised March 1989).

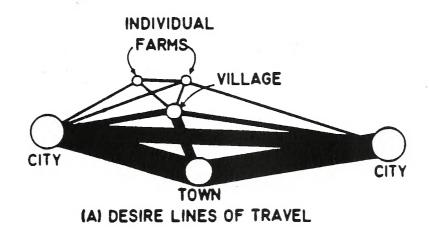
Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are to provide. Basic to this process is the recognition that individual roads and streets do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads. It becomes necessary then to determine how this travel can be channelized within the network in a logical and efficient manner. Functional classification defines the nature of this channelization process by defining the part that any particular road or street should play in serving the flow of trips through a highway network. (2)

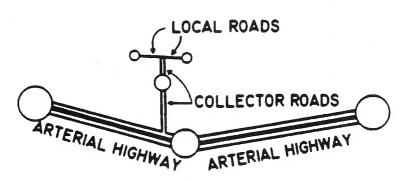
(2) Highway Functional Classification, Concepts, Criteria and Procedures, 1989, p. II-1.

A schematic illustration of this basic idea is provided in Figure 1. (Channelization of Trips Figure)

FIGURE I

# **CHANNELIZATION OF TRIPS**





(B) ROAD NETWORK PROVIDED

The USDOT Functional Classification System is divided into a Rural Classification System and an Urban Classification System. The Urban Area Boundary (UAB) serves as the border between the Rural and Urban Classification Systems. This border can be thought of as an adjusted Census Boundary. It 'squares-off' the irregular edges of the Census Boundary, and it may include out-parcels of the incorporated area, that were isolated from the main city or town area. (3) (see Figure 2 for an illustration of different boundary types.)

(3) Highway Functional Classification, Concepts, Criteria and Procedures, 1989, p. II-1.

# Regional Thoroughfare Planning Concept

A regional thoroughfare plan considers travel only within a region of several counties. It focuses on the rural areas of counties within the region and does not continue into Urban Areas. This is due to the fact that urban area travel differs significantly from that of a rural area. Urban area trips are characteristically shorter in nature and provide land service as well as traffic service.

The underlying concept of the regional thoroughfare plan is to provide a functional system of streets and highways which permit direct, efficient and safe travel. Different elements in the system are designed to have specific functions and levels of service, thus minimizing the traffic and land service conflict.

In the regional plan, elements are designed as either urban or rural. In the urban planning area, the local municipality generally has planning jurisdiction. Outside the urban planning area, the county has planning jurisdiction. In those urban areas where no urban thoroughfare plan has been developed, elements are generally designated as rural and are under the planning jurisdiction of the county. When a thoroughfare plan is developed for an urban area that has not previously had a plan, the area defined by that plan is considered to be urban and comes under the planning jurisdiction of the municipality.

Within the urban and rural systems, thoroughfare plan elements are classified according to the specific function they are to perform. A discussion of the elements and functions of the rural systems follows.

The rural system consist of those facilities outside the urban thoroughfare planning boundaries. They are classified into four major systems: Principal arterials, minor arterials, major and minor collectors, and local roads. Table 1 indicates generally accepted statewide mileage on these systems.

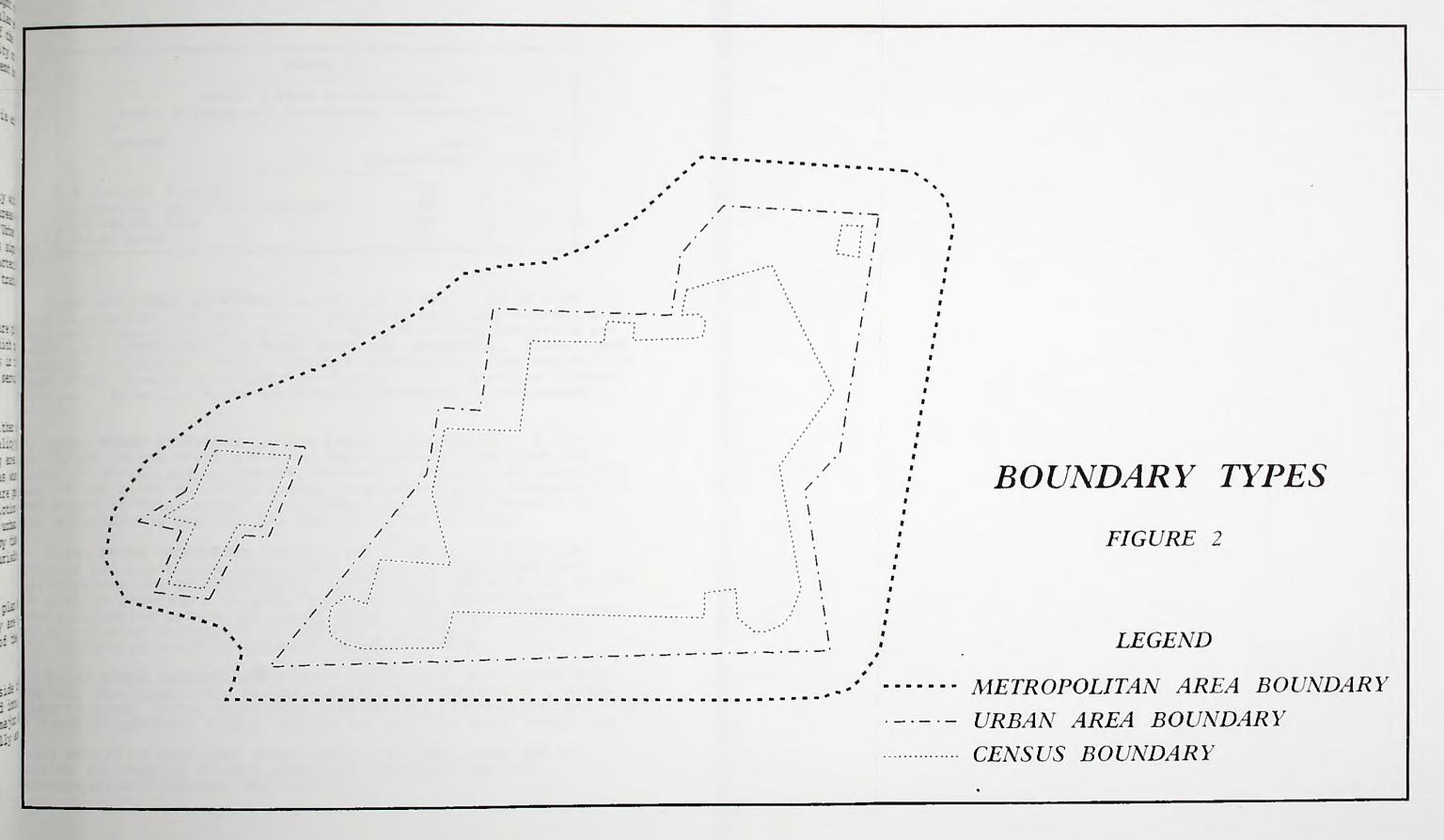




TABLE :	1.	
USDOT / FHWA Guidelines on Rural Mileage for Functional Classification		
SYSTEM	RANGE (percentage in miles)	
Principal Arterial Principal and Minor Arterial Collector Road Local Road	2% - 4% 6% - 12% 20% - 25% 65% - 75%	

Rural PRINCIPAL ARTERIALS connect all urban areas of over 50,000 population. In many cases, principal arterials connect areas with populations of 25,000 or more. Rural Principal Arterials are divided into INTERSTATE and OTHER PRINCIPAL ARTERIALS. These roads provide an integrated, unified network which avoids stub connections except where unusual geographic or traffic flow conditions dictate otherwise. Arterials serve substantial statewide or interstate traffic.

Rural MINOR ARTERIALS connect population centers of 5,000 or more, major resort areas and other major destinations which are capable of attracting intrastate/intercounty travel. All developed areas of the state should be within reasonable travel distance of a rural minor arterial route. Trip length and traffic density on minor arterials is greater than that on collector roads.

Rural MAJOR COLLECTORS connect county seats, which are not served by principle arterials, towns over 1,000 population and traffic generators of INTRACOUNTY importance to the arterial system. Such traffic generators include facilities like consolidated schools, shipping points and county parks. Trip length and traffic density on major collectors is somewhat less than on arterials. Major collectors serve intracounty travel corridors.

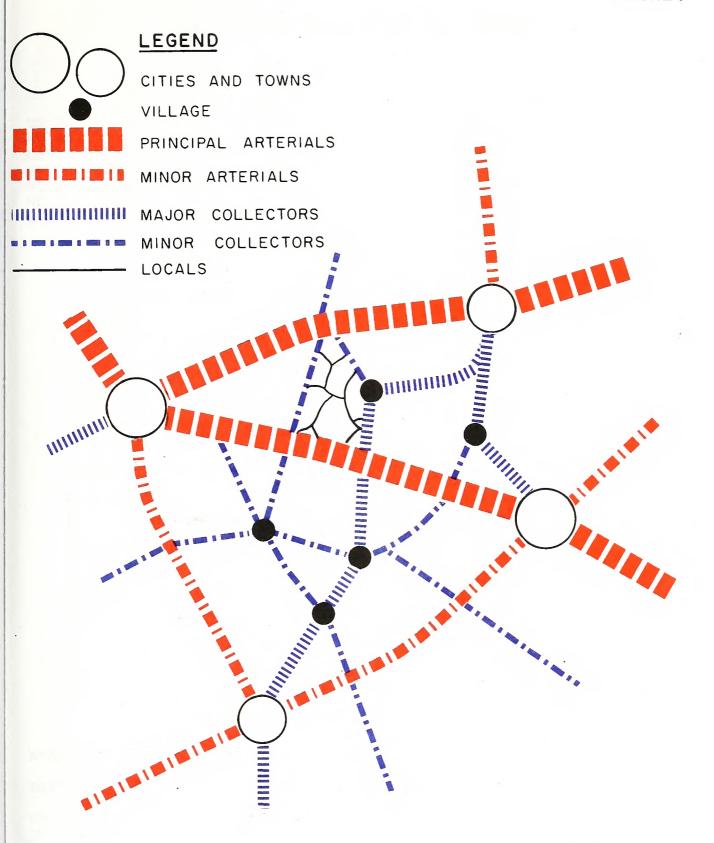
Rural MINOR COLLECTORS collect traffic from local roads and bring all developed areas within a reasonable distance of a major collector road. Minor collectors link smaller communities; and link the locally important traffic generators with the rural outskirts.

A note should be made that Rural Minor Collector roads are not eligible for federal funding under the Intermodal Surface Transportation Efficiency Act (ISTEA).

Rural Local roads primarily serve as land access and have relatively short travel distances. They include all roads not classified as either arterial or collector. Local residential subdivision streets and residential collector streets are elements of the local road system. Local residential streets are either cul-de-sacs, loop streets less than 2,500 feet in length, or streets less than one mile in length that do not connect thoroughfares or serve major traffic generators and do not collect traffic from more than one hundred dwelling units. Residential collector streets serve as the connecting street system between local residential streets and the thoroughfare system.

Figure 3 illustrates the functional classification of a rural highway network.

A regional thoroughfare plan is based on a regional view of travel. Such travel is facilitated by roads which link cities and towns in two or more of the counties in the region. The higher classified facilities, such as US and NC routes often cross county lines and provide INTERCOUNTY travel service. Therefore, these facilities are of particular interest in a regional thoroughfare plan. Local rural and collector roads (and some NC routes) are characteristic of INTRACOUNTY travel; these roads usually do not serve county-to-county travel. Principal arterials and minor arterials do cross county lines and connect towns and/or cities, which are located beyond the boundaries of one county. For these reasons, a regional thoroughfare plan focuses only upon the principal and minor arterials of a region.



SCHEMATIC ILLUSTRATION
OF FUNCTIONALLY CLASSIFIED
RURAL HIGHWAY NETWORK

# III. REGIONAL TRANSPORTATION INVENTORY

# Roadways

The Principal Arterial highways in Region 'G' are I-40, I-85, US 29, US 52, US 64, US 158, US 220, US 311, US 421, NC 109, and NC 49. These facilities provide travel service on varying 2-6 lane divided/undivided cross-sections. This arterial system is augmented by the following NC routes: NC 8, NC 14, NC 22, NC 47, NC 54, NC 57, NC 61, NC 62, NC 65, NC 68, NC 86, NC 87, NC 100, NC 119, NC 134, NC 150, NC 159, NC 610, NC 700, NC 705, NC 770. These NC routes are generally undivided 2 lane facilities, having 12 ft. wide lanes.

	TABLE 2
	NC ROUTES SERVING INTRA-REGIONAL TRAVEL
Route	Serving Counties
NC 49 NC 62 NC 87	Davidson, Randolph and Alamance Randolph, Guilford, Alamance and Caswell Alamance, Caswell and Rockingham

	TABLE 3
US	S ROUTES SERVING INTRA-REGIONAL TRAVEL
Route	Serving Counties
US 220 US 64 US 158 US 29	Randolph, Guilford and Rockingham Davidson and Randolph Guilford, Rockingham and Caswell Davidson, Guilford, Rockingham and Caswell

# Airway Service

ALAMANCE COUNTY: Burlington Airport located near NC 62.

DAVIDSON COUNTY: Lexington Airport located near I-85.

**GUILFORD COUNTY:** Piedmont Triad International Airport located near US 421. Upgraded in 1984, the airport serves the urban areas of Greensboro, Winston-Salem, and High Point.

RANDOLPH COUNTY: Asheboro Municipal Airport located near NC 49.

ROCKINGHAM COUNTY: The airport in Reidsville serves light aircraft.

# Railway Service

ALAMANCE COUNTY: Southern Railway serves the Graham/Rockingham area.

CASWELL COUNTY: Northwest Caswell County is served by the Southern Railway and the Norfolk Southern Railroad.

**DAVIDSON COUNTY:** Davidson County is served by Southern Railway, Winston-Salem Southbound Railway and High Point-Thomasville-Denton Railroad.

GUILFORD COUNTY: Rail freight service is offered by Southern Railway and by the High Point, Thomasville and Denton Railroad, with Southern's East Coast main line passing from the North through Greensboro and High Point. Rail passenger service is provided by Amtrak northward to Washington, DC and southward to Atlanta.

RANDOLPH COUNTY: Randolph County is served by a line of the Carolina and Northwestern Railroad.

ROCKINGHAM COUNTY: The Southern Railway serves Reidsville, the Carolina & Northwestern Railway serves Eden and the N & W Railway serves Madison/Mayodan.

# IV. STATUS OF CITY AND COUNTY THOROUGHFARE PLANS IN REGION 'G'

Urban and County Thoroughfare plans are developed to assist officials in the development of the most efficient street system that will handle existing and future travel demands. A proper thoroughfare plan should be devised using the cooperative efforts of the municipality as well as the county. The following cities or counties currently have, or are currently in the process of developing a thoroughfare plan.

#### ALAMANCE COUNTY URBAN AREA

Alamance County (1990), Elon College (1992), Burlington (1992), Gibsonville (1990), Graham (1990), Haw River (1990), Mebane (1990).

#### CASWELL COUNTY

Caswell County unadopted-study completed. Yanceyville unadopted-study completed.

# DAVIDSON COUNTY

Davidson County, unadopted-study completed. Lexington (1993). Lexington is in the process of having its thoroughfare plan updated. Thomasville (1989-1990)

#### GUILFORD COUNTY

Guilford County-Greensboro (1993); Guilford County-High Point (1990) High Point-Jamestown (1989-1990)

#### RANDOLPH COUNTY

Asheboro (1990) Archdale (1989-1990) Ramseur-Franklinville (1979) Randleman (1991).

#### ROCKINGHAM COUNTY

Eden (1977). Eden is in the process of having its thoroughfare plan updated.
Reidsville (1985)
Madison (1985)
Mayodan (1983)

# V. POPULATION, EMPLOYMENT, AND TRAFFIC

# Geographic Location

Region 'G' is composed of six counties. The counties are: Alamance, Caswell, Davidson, Guilford, Randolph and Rockingham. Region 'G' is located in the northern central section of North Carolina's Piedmont Plateau. The region itself is bordered to the north by Virginia and clockwise by the North Carolina Counties of Person, Orange, Chatham, Moore, Montgomery, Stanly, Rowan, Davie, Forsyth and Stokes. (See Figure 4)

# Population Trends

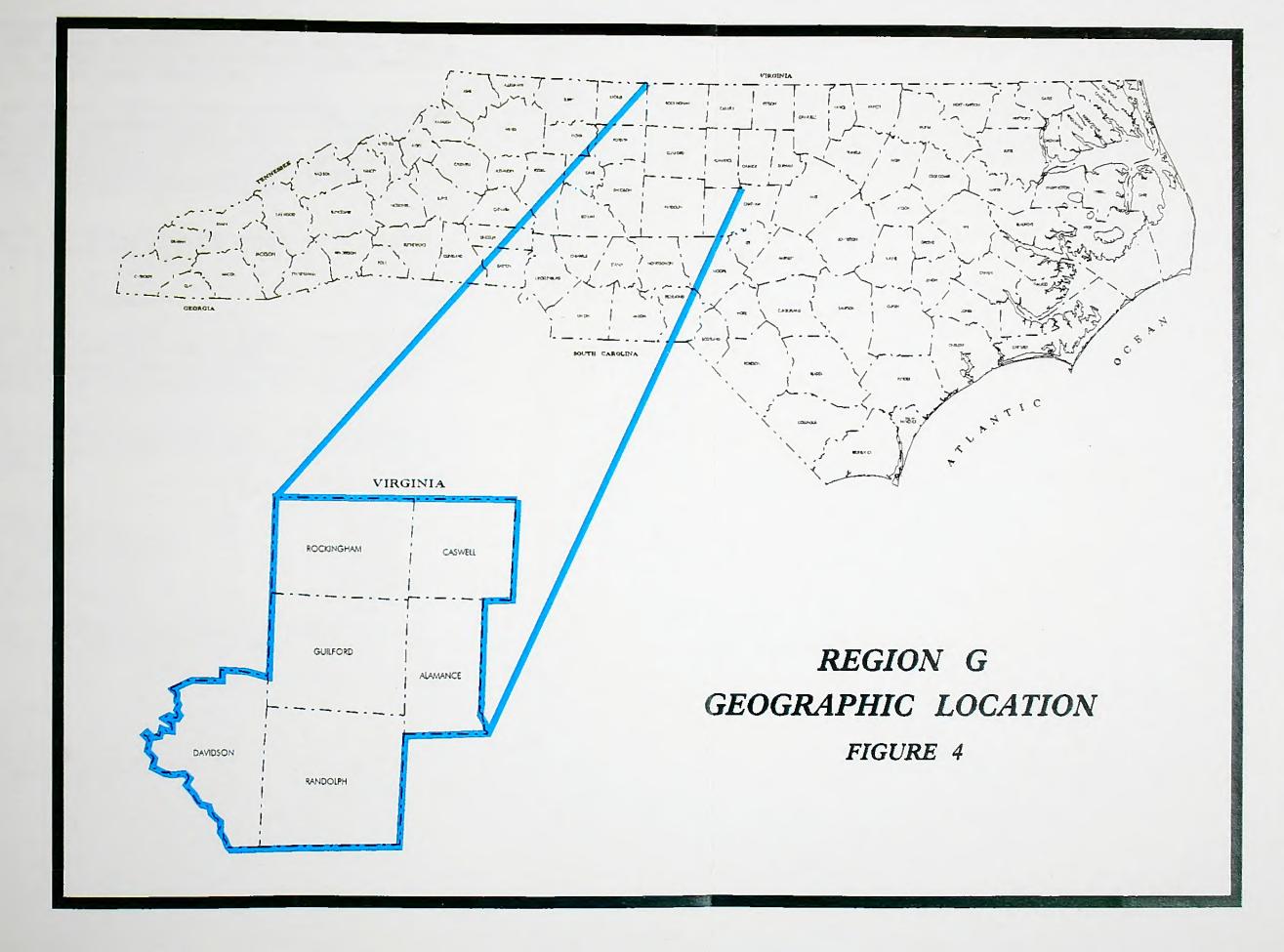
The volume of traffic on a section of roadway is a function of the size and location of the population it serves. An analysis of the population is one of the first steps of a transportation planning process. The analysis of past trends allows the planner to estimate population and the traffic which it will generate with some degree of reliability.

Alamance County experienced a peak population growth rate of 3.76% per year during the 1950's. Since then, it has maintained a steady positive growth rate of less than one percent per year. Population projections by the North Carolina Office of Budget and Management (NCOB&M), for the design period 1990-2010, are based upon an estimated annual growth rate of approximately 0.5%.

Caswell County experienced positive population annual growth rates of less than one percent during the 1940's and 1970's. During the latter period of 1940 to 1990, Caswell County experienced an annual growth rate of 0% to -0.3%. While the NCOB&M assumes a continued negative population growth rate until the design year of 2010, the planned upgrade of US 158 to a multi-lane facility is intended to encourage economic development. Naturally, this development could translate into an increased annual population growth rate.

Davidson County experienced significant population growth during the 1950's (annually 2.48%) and 1970's (annually 3.77%). The 1940's, 1960's, and 1980's also experienced annual population growth rates exceeding one percent. The lowest growth decade, during the 1940-1990 period was the 1980's. It grew at an annual rate of 1.13%. NCOB&M projections foresee continued growth; however, the annual rate is expected to stabilize below one percent during the design period from 1990 to 2010.

Guilford County, like Davidson and Randolph counties, experienced a healthy population expansion during the 1940-1990 period. Guilford's maximum annual growth decade during this period was the 1950's at 2.58%. Its minimum growth decade was the 1980's at 0.92%. NCOB&M projects sustained growth at a rate of 0.8% to 0.6% during the 1990-2010 design period.





Randolph County experienced a maximum annual population growth rate of 2.19% during the 1960's and a minimum of 1.3% during the 1940's. Population forecasts by NCOB&M suggest a continued annual growth rate of 1.1% to 1.5%, for the years 1990-2010.

Rockingham County, like Caswell County has historically (1940-1990) grown at a more modest rate compared to its sister counties in Region 'G'. Its population grew at a maximum of 1.43% per year during the 1970's and at a minimum of 0.31% during the 1980's. NCOB&M projects even more modest annual population growth rates of 0.3% to 0.03% during the 1990-2010 design period.

See Appendix C, **Table C1** for historical and projected population trends in Region 'G' by county and decade.

# **Employment**

**Table 4** lists the twenty largest labor force industries for Region 'G', the total employment for 1980, 1990, and projections for the year 2000. The following information and projections were supplied by the North Carolina Employment Security Commission (NCESC).

Based on NCESC estimates for the year 2000, the following labor industries will experience the highest growth rate for the period 1990-2000. They include:

		% Growth	2000 Employment
1)	Membership Organizations	238	5,759
2)	General Building Contractors	94	8,139
3)	Building Material & Garden Supplies	31	3,546
4)	Educational Services	24	33,333
5)	Eating & Drinking Places	23	27,327
6)	Wholesale Trade, Durable Goods	22	18,446

The labor industries that are anticipated to experience a negative growth rate for the same period include:

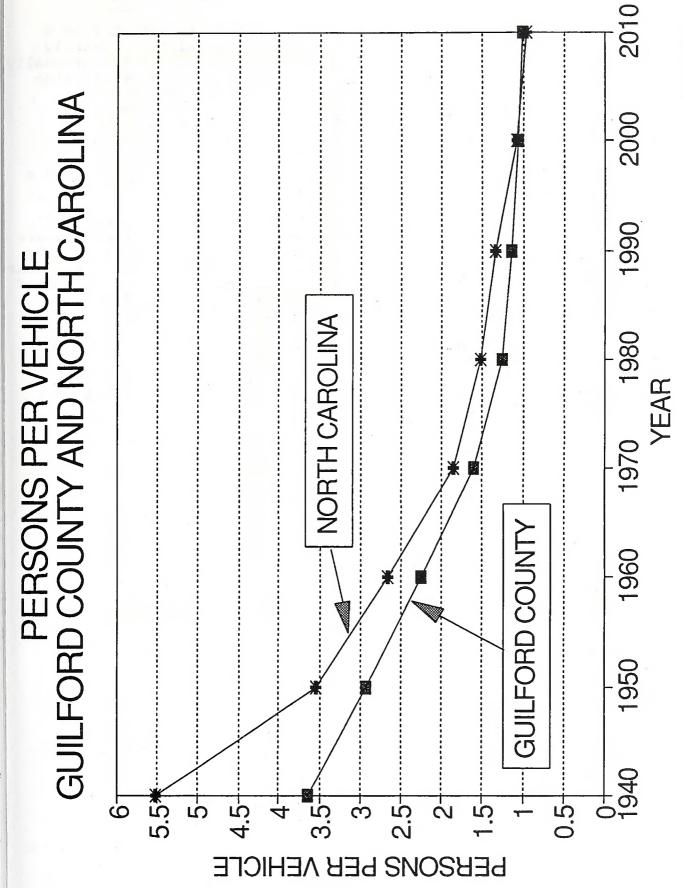
		% Growth	2000 Employment
1)	Agricultural Production Federal Government	- 46 - 24	4,311 923
3)	Textile Mill Products	- 23	33,347
5)	Electronic & Other Electrical Apparel and Textile Products	Equip 16 - 12	8,014 7,623
6)	Tobacco Products	- 8	2,451

Table 4 LABOR INDUSTRY:	TOTAL LABOR FORCE:		
	Year 1980	Year 1990	Year 2000
TEXTILE MILL PRODUCTS	57843	43417	33347
EDUCATIONAL SERVICES	22996	26859	
EATING AND DRINKING PLACES	13256		
FURNITURE AND FIXTURES	24361		
HEALTH SERVICES	14474		
BUSINESS SERVICES	7068	16297	
WHOLESALE TRADE, DURABLE GOODS	13257		
SPECIAL TRADE CONTRACTORS	10999		
LOCAL GOVERNMENT, EXC. EDUCATION &	20333	10000	1.000
HOSPITALS	10779	13361	14344
GENERAL MERCHANDISE STORES	6814	9114	10359
FOOD STORES	6689	10019	
MISCELLANEOUS RETAIL STORES	7429	10570	9690
TRUCKING AND WAREHOUSING	5897	8607	9676
WHOLESALE TRADE, NONDURABLE GOODS	6159	8053	8933
GENERAL BUILDING CONTRACTORS	3552	4192	8139
ELECTRONIC & OTHER ELECTRICAL EQUIP	6596	9554	8014
APPAREL AND TEXTILE PRODUCTS	9589	8658	7623
AUTO DEALERS AND SERVICE STATIONS	5021	6486	7354
PRINTING AND PUBLISHING	4149	6448	6974
DEPOSITORY INSTITUTIONS	2889	5469	6259

# Traffic

Registered motor vehicles in Region 'G' have climbed to the 714,000 mark for 1992; an increase of 23% over the past 20 years. As the number of vehicles increase, it will put a greater strain on the existing road network. Additional traffic volumes will increase safety hazards and congestion. To alleviate traffic congestion, steps must be taken towards building new roads and enhancement of existing facilities.

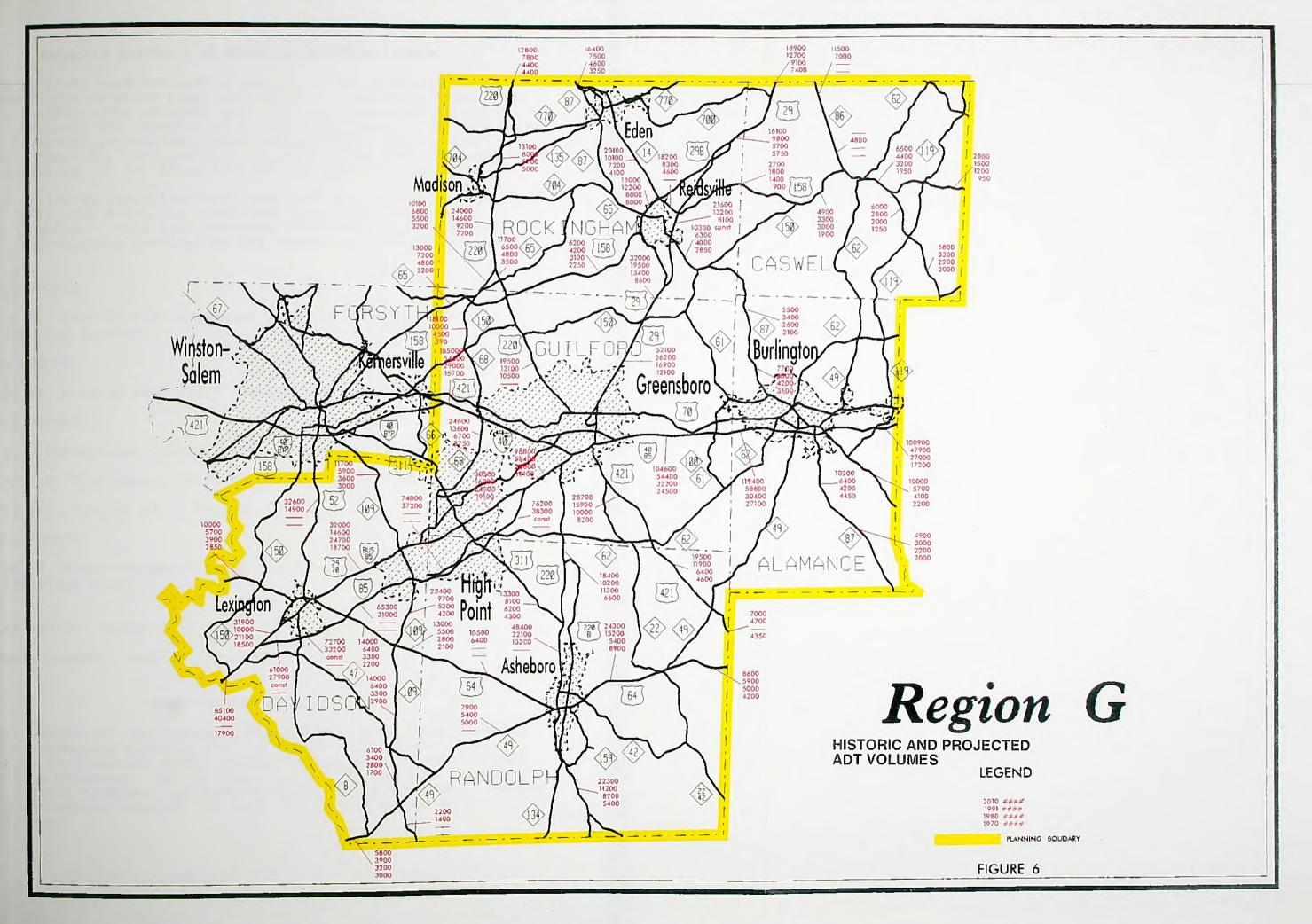
Vehicle registration has increased at a much greater rate than population since 1940. This increase can be shown best by a graph depicting the change in persons per vehicle ratio over time. This ratio is obtained by dividing the total population of the area by the total number of vehicles registered in that area. To illustrate this point, Figure 5 shows this comparison for North Carolina and Guilford County and includes projections for the year 2010. See Appendix C, Table C2 and C3 for a list of the persons per vehicle rate for Guilford County and North Carolina from 1940 to 2010.

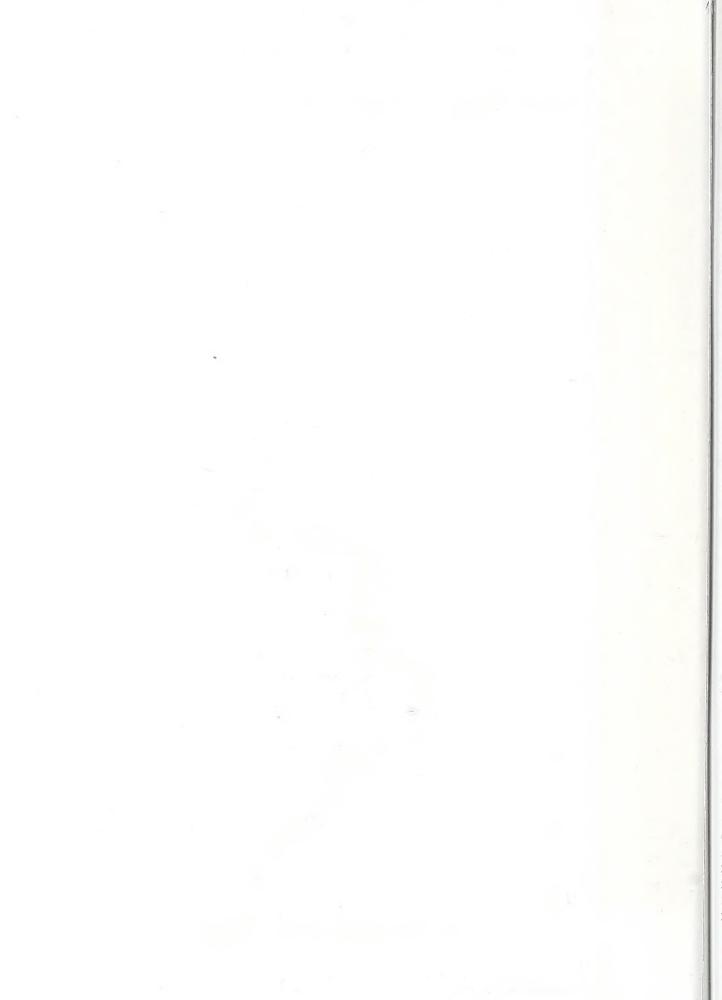


The results of this figure illustrate the transition from a non-automobile oriented society to one whose vitality is heavily dependent on the automobile. This change in lifestyle has gradually occurred over many years, with the most dramatic difference being between 1940 and 1960. This is primarily due to: the post-depression increase in the standard of living; the increase in population including the post World War II "Baby Boom"; the transition from an agriculturally dominated society to a more diversified one (fewer people on the farm, greater need for transportation); and the availability of automobiles in the 1960's and 1970's and the banking credit to buy them.

In the analysis of historical traffic counts for Region 'G', several primary road traffic volumes were projected 10 and 20 years into the future. For each location on a given road, Average Daily Traffic (ADT) counts for the past twenty years were used in a linear regression analysis to estimate future ADT counts. Graphical trend lines for each location assisted in the analysis by estimating future ADT's through a computer generated program.

The counts for each location were then adjusted depending on population growth, registered vehicles, and planned development for that area. This step allows for a more accurate representation of traffic volumes. **Figure 6** shows the ADT's for selected locations throughout Region 'G'.





### Capacity Analysis of Existing Arterial System

The arterial road network in Region 'G' was analyzed to determine if the existing roads were able to adequately handle the existing traffic. The process calls for the comparison of volume to capacity ratios. The capacity of a particular road is dependent on levels of service (operating speeds) and pavement width. When the existing volumes for roads outside of urban areas were compared to those capacities, it was found that no road was over-capacity.

When existing capacities were compared to projected volumes for the year 2010, the following roads were anticipated of having capacity problems. This list excludes facilities with expected capacity improvements provided by the Transportation Improvement Program.

### ALAMANCE COUNTY:

- NC 87; from SR 2327 (Mountain Road) to Burlington Urban Planning Boundary.

### CASWELL COUNTY:

- NC 86; from SR 1300 (Park Springs Road) to Virginia.

### DAVIDSON COUNTY:

- I-85; from Rowan County to US 29-70/I-85 Business split.
- NC 109; from Denton South City Limit to Salisbury Street.
- NC 109; from NC 47 to Forsyth County.

### GUILFORD COUNTY:

- US 29; from Greensboro Urban Planning Boundary to SR 2790 (Eckerson Road).

RANDOLPH COUNTY: None

ROCKINGHAM COUNTY: None

### Modal Transportation

This section of the Regional Thoroughfare Plan identifies the employment commuting patterns for the Region and relates this information to different modal transportation issues, specifically ride-sharing programs. The following is not intended to change or replace current programs implemented within the urban areas. Rather it is an attempt to identify the need for such programs on a regional level.

Travel Demand Management (TDM) programs are operational techniques used to implement and support the use of high occupancy vehicles (HOV). Public transit, carpooling, and vanpooling programs are intended to relieve congestion by reducing the number of vehicles on local facilities. This reduction in vehicles is due to the increase in vehicle occupancy rates; i.e., the same number of people are being transported in a fewer number of vehicles.

The basic idea behind a ride-sharing program is to provide a means of transporting commuters between home and work that is more beneficial in terms of cost than would be using a single occupancy vehicle. If used extensively, benefits may be seen in the relief of localized congestion problems.

Although the benefits of ride-sharing are apparent to most planning professionals, public participation is still limited. This can be contributed to two reasons. First, in some cases highway congestion has not become enough of a problem for commuters to shift from the convenience of having their own vehicle to a ride-sharing program. For instance, in years past, a highway experiencing capacity problems could simply be improved by adding additional lanes. Second, and of equal importance, public knowledge and employer support have decreased since the energy crisis in the earlier 1970s. Lower fuel cost and smaller, fuel-efficient vehicles have encouraged the use of single occupancy vehicles.

According to the U.S. Census Bureau, the 1990 census showed a 9% increase in single occupancy drivers commuting from home to work. Furthermore, the survey showed no increase in the use of any other mode of transportation. (See Table 5)

<b>Table 5</b> National Transportation	n Patterns	
Commuting Preference:	(percen 1980	t use) 1990
Single Occupant vehicle	65.0%	74.0%
Car Pooling	20.0	13.0
Public Transit	6.4	5.3
Walking	5.6	3.9
Bicycling	0.5	0.4
Working at Home	2.3	3.0
Other	0.7	0.7

With sufficient incentives - and penalties for solo driving - planners believe that far more car pooling could never the less be encouraged. "The empty seats in commuters' cars are our most dramatic source of transit capacity," says Mr. Pickrell of the [U.S.] Transportation Department. By federal reckoning, an increase to about 1.6 persons per car at rush hour from the current 1.1 would defer thousands of miles of highway construction and save billions of dollars. (3)

(3) Wall Street Journal, "Empty Seats", June 29, 1993.

### Region 'G' Commuting Patterns

Using the 1990 census survey information, along with the arterial system for the Region, the study was able to establish County and Urban Area commuting patterns within the Region. A model was established that is based on the same concept as the "Gravity Model", much like the Gravity model used for Urbanized areas. The basic idea of the model is that a more highly populated area will generate more trips and, conversely, a larger employment base will attract more trips.

To identify the daily commuting patterns for Region 'G', it was necessary to establish a planning boundary for the scope of the study. Because of its close proximity to the Region and importance to daily commuting trips within the Triad, Forsyth County was included in the planning area. **Figure 7** shows the planning area highlighted in yellow.

First, the census survey provided daily commuter trips between each county within the planning area, as seen on the Internal Trip figure. (See Figure 8) External Trips, with travel times less than one hour were established for the surrounding counties. (See Figure 9)

The Census Survey provided employment location information for commuters in cities and towns with a population greater than 1000. It also provided travel times for daily commuters travelling outside of their place of residence. Using this information, and the assumption that longer trips (inter-county) would be accomplished using the higher classified facilities, daily commuter trips were allocated to the highway network. (See Figure 10)

Obviously, the highest trip attraction was between the four Urbanized Areas of Burlington, Greensboro, High Point, and Winston-Salem. More interesting is the number of trips being generated by areas outside of the Triad, specifically the trips generated between:

### Routes Utilized (assumed)

- Reidsville to Greensboro	US 29
- Kernersville to Winston Salem	I-40 Business, NC 150
- Kernersville to Greensboro	I-40 and US 421
- Lexington to Winston Salem	US 52
- Asheboro to High Point/Archdale	US 311
- Eden to Reidsville	NC 14

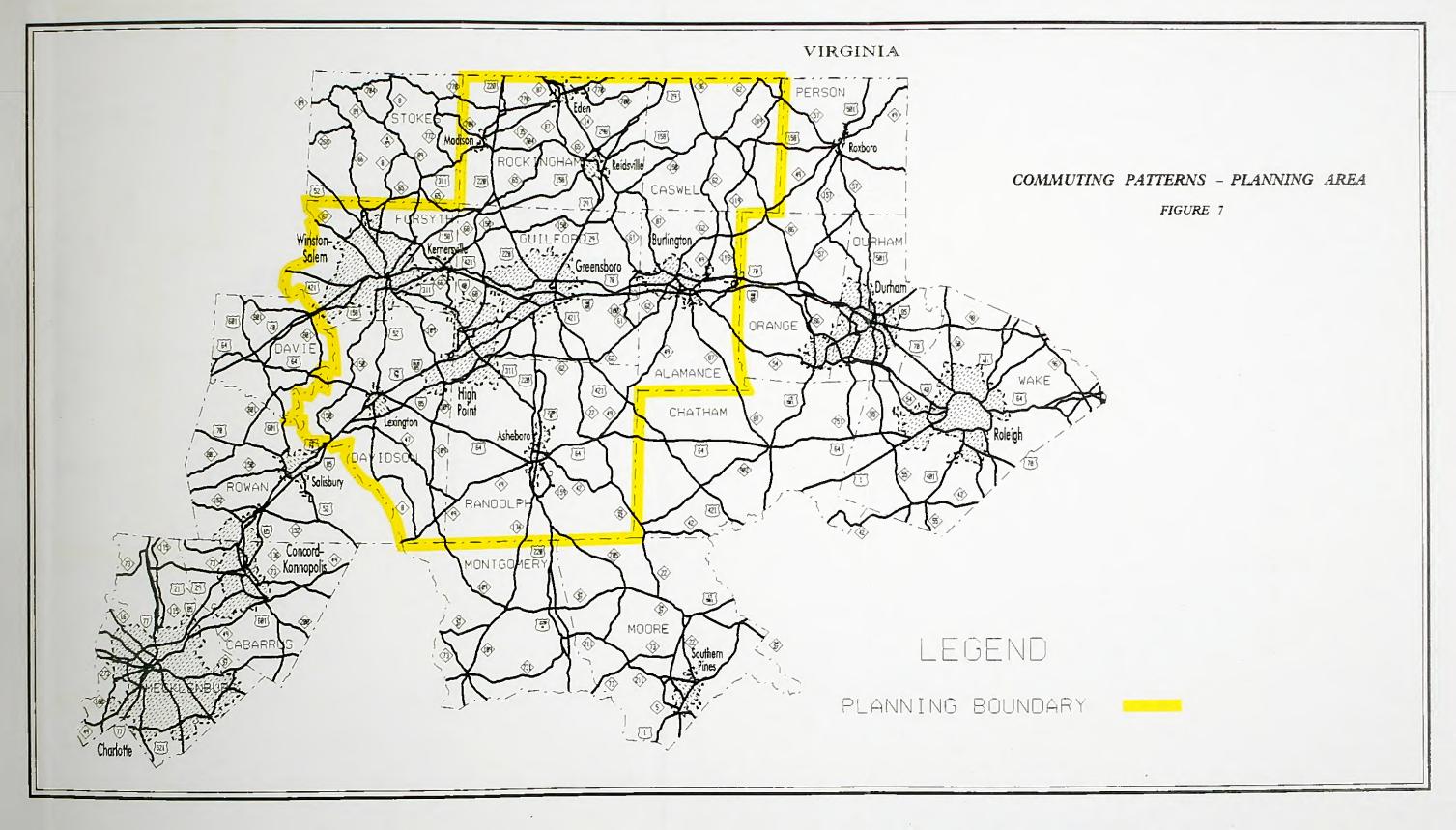
The outcome of this study suggests that a continuous effort be focused on a ride-sharing program for the Region. Further study should be conducted by a Regional Transit Authority (or the regional governing body) in determining whether such a program is conceivable. A regional survey would be required to determine the demand, cost, and benefits of such a program.

### Implementation

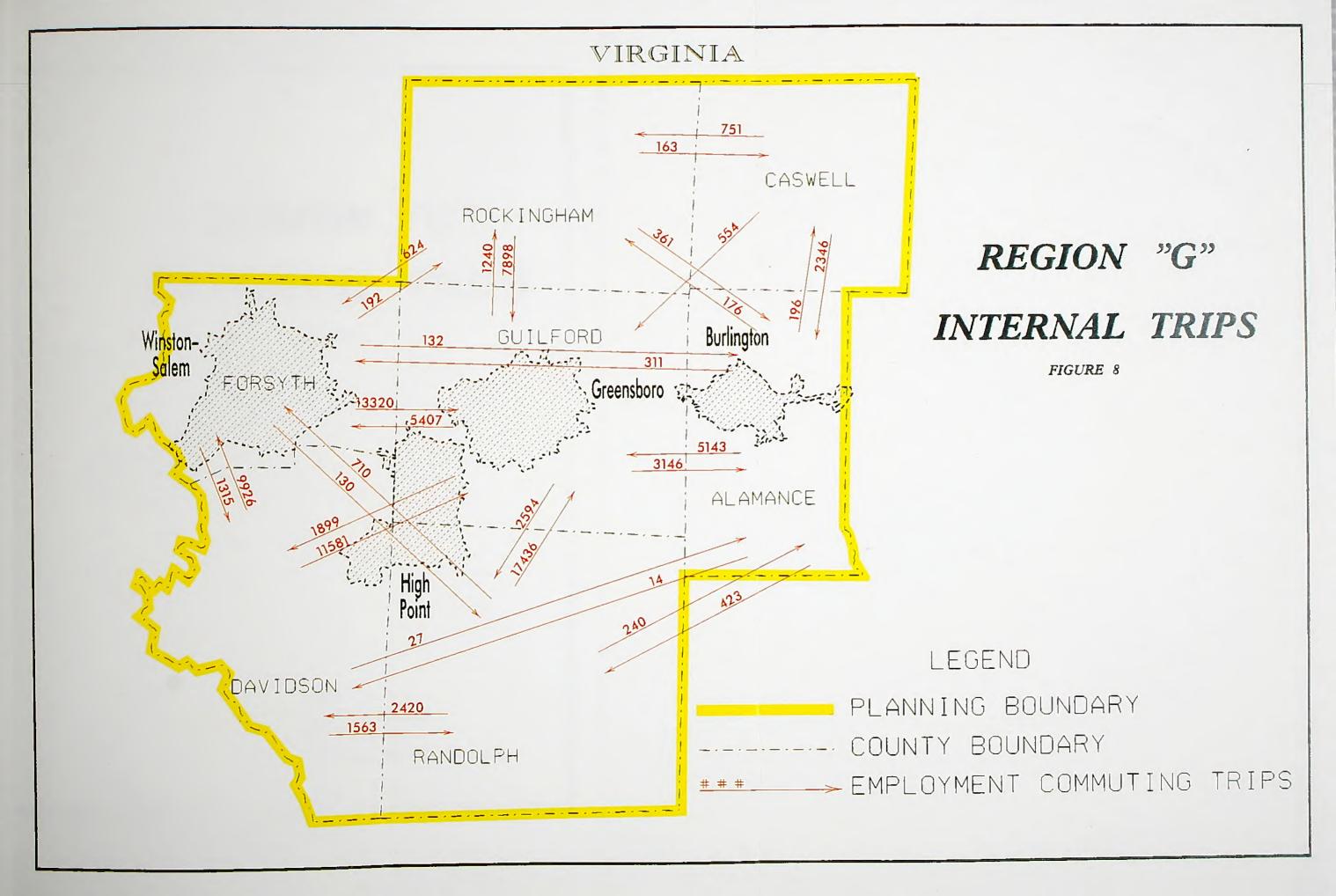
To implement ride-sharing programs effectively, some or all of the following policies and incentives need to be in place: HOV lanes and ramps, preferential parking for HOV's, employer transportation coordinator(s), flexible work hour policies, marketing and promotional programs, pricing policies (e.g. for parking and transit), revised parking and zoning (codes), and matching services.

(2) Guide for the Design of Park-and-Ride Facilities, American Association of State Highway and Transportation Officials, 1992, p 337.

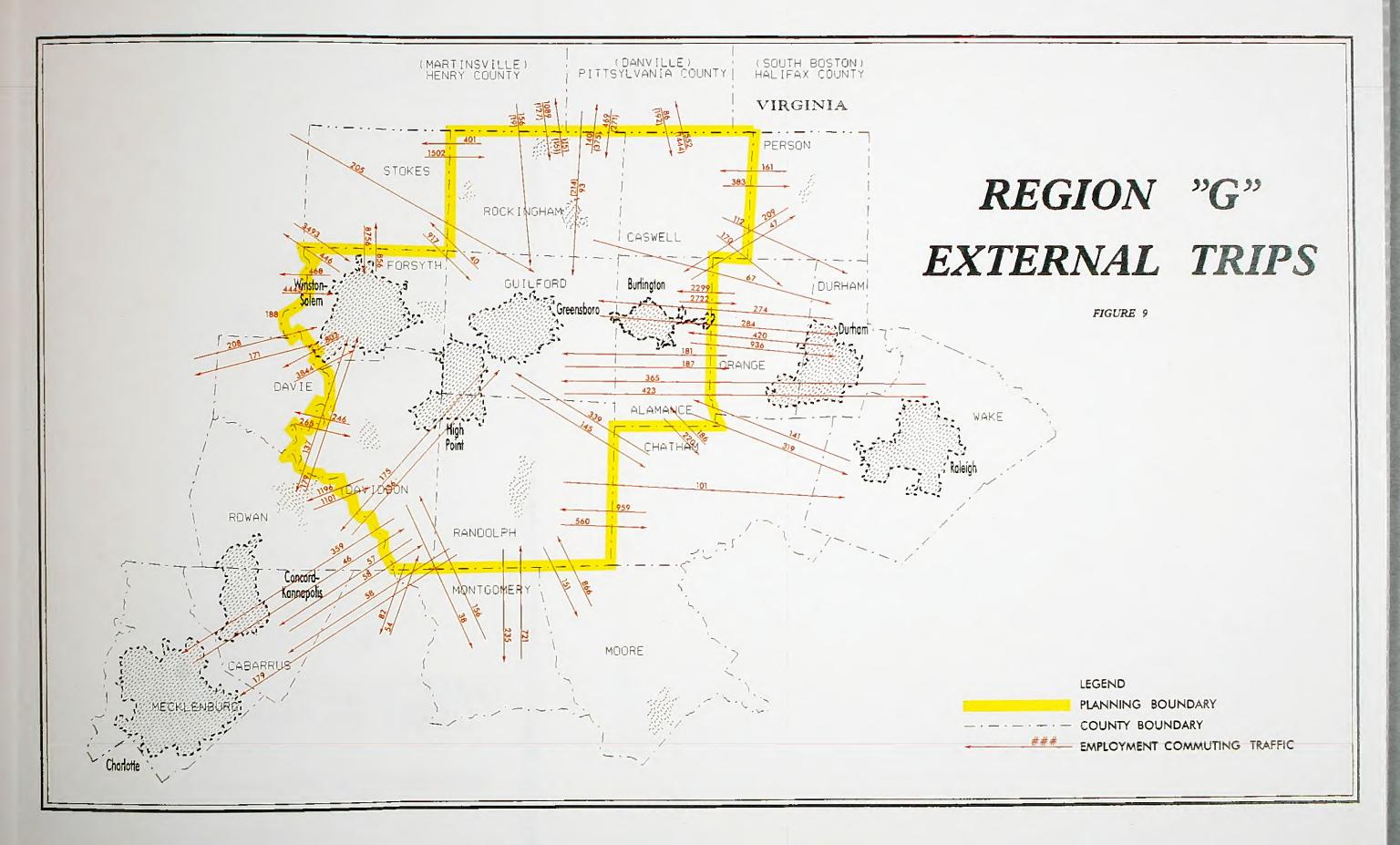
A properly coordinated ride-sharing program is probably one of the most foreseeable options for alleviating recurring congestion problems in Region 'G'. A successful program would ultimately depend on whether incentives for commuters and cooperation by employee management could be achieved.



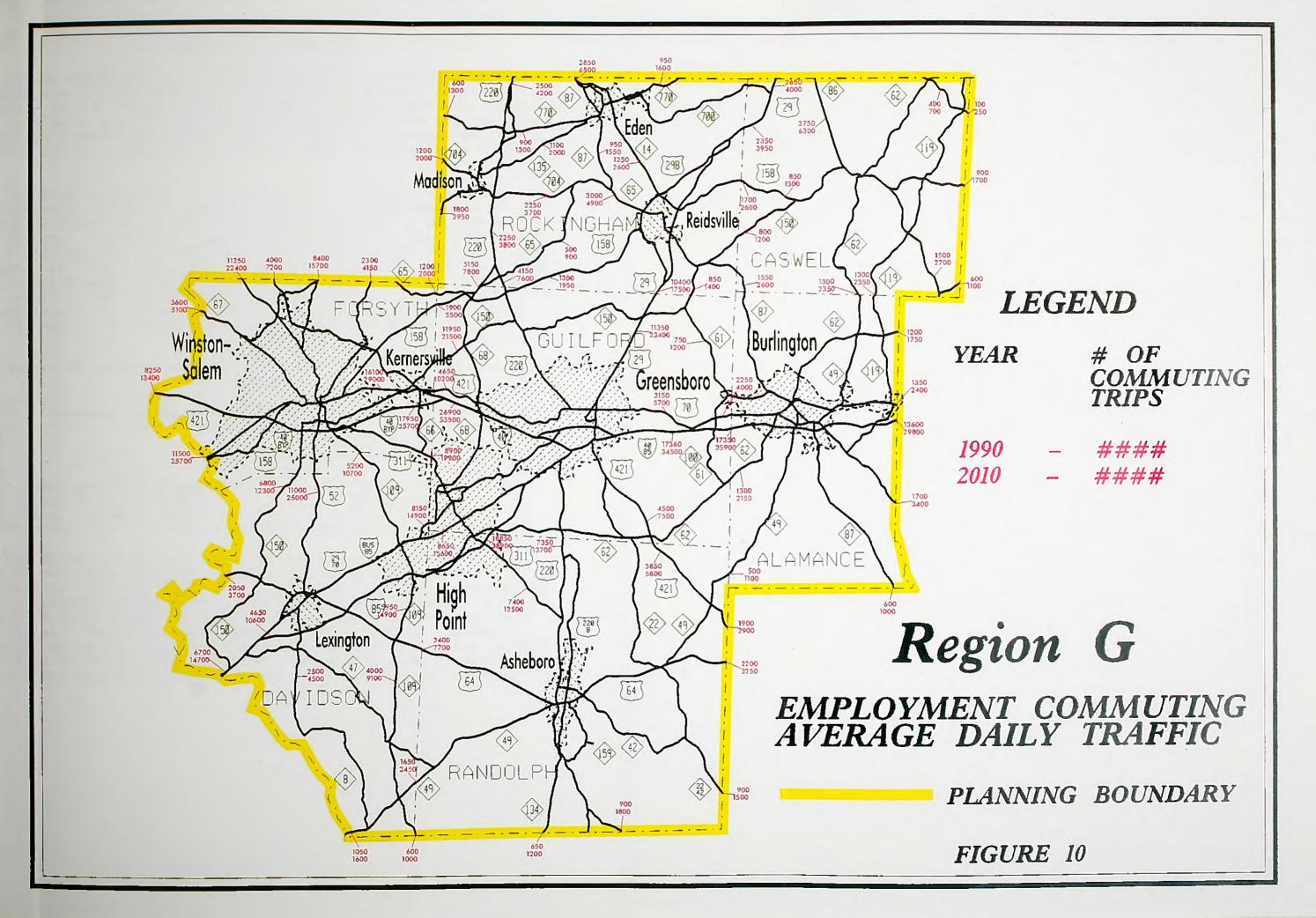












### Design Requirements

Design requirements for thoroughfares vary according to the desired capacity and level of service to be provided. Universal standards in the design of thoroughfares are not practical. Each road or highway section must be individually analyzed and its design requirements determined by the amount and type of projected traffic, existing capacity, desired level of service, and available right of way.

The level of service is a function of the ease of movement experienced by motorists using the facility. (See Appendix A) The ability of a motorist to drive at a desired speed is dependent upon many factors. Included are the physical design of the road, the amount and character of traffic control devices, the influence and character of traffic generated by abutting property, and the imposed speed restrictions. The level of service is generally indicated by the overall travel speed experienced by traffic. Recommended minimum levels of service for roads and highways included in the proposed Region 'G' Thoroughfare Plan are given in Table 6.

			TABLE 6		
M	inimum Lev	els of Se	rvice for	Roads and	Highways
	Facility			verall Tra Peak Trav	vel Speed el Conditions
Major	and Minor Collector Collector		3	<b>50-55</b> 45-50 40	MPH

For driver convenience, ease of operations, and safety, it would be desirable to widen all existing roads and highways to provide a minimum lane width of 12 feet. However, when considering overall statewide needs and the available highway revenue, it is found that these levels of improvement applied statewide would be impractical. Therefore, it is necessary to establish minimum tolerable widths for existing roads with respect to traffic demands that would be economically feasible. The widths used in determining the existing lane deficiencies in the Region are given in **Table 7**.

	T	ABLE 7	
Minin	num Tolerable	Lane Widths (in	n feet)
ADT	Principal Arterials	Minor Arterials	Collectors
over 2,000 400 - 2,000 100 - 400 below 100	11 -	11 10 10	11 10 9

### Traffic Safety

Traffic accident records are useful in locating problem areas on the highway system. The Intersection Accident Listing for the period January 1, 1989 to December 31, 1991 lists 73 intersections in Region 'G' with 10 or more accidents. Those intersections with 15 or more accidents, or where accident severity or accident damage is considerably higher than the average, are called "significant high accident locations". There are 30 significant high accident locations in Region 'G'. **Table 8** lists the significant high accident intersections with the corresponding number of accidents per location.

REGION 'G' SIGNIFICANT HIGH ACCIDENT LOCATIONS TABLE 8

COUNTY	INTERSECTION	total ACCIDENTS
Alamance	NC 49 & NC 62 NC 62 & SR 1545 NC 87 & SR 1523 SR 1700 & SR 1715	17 18 21 15
Davidson	I-85 & NC 109 US 52 & SR 2932 NC 8 & NC 47 NC 109 & SR 2055 NC 109 & SR 2205 NC 150 & SR 1192 SR 1104 & SR 1254 SR 1493 & SR 1520	21 15 24 22 19 16 15
Guilford	I-40 & SR 1850 US 29 & SR 1480 US 158 & NC 68 US 220 & SR 2182 US 421 & SR 3411 NC 68 & SR 1556 NC 68 & SR 2085 NC 6 & SR 3140 NC 65 & SR 2046 SR 1007 & SR 3430 SR 1541 & SR 1546 SR 1541 & SR 1552 SR 1695 & SR 2085	23 24 17 18 17 24 16 24 22 16 28 21
Randolph	US 29 & SR 1619 NC 62 & SR 1558	17 19
Rockingham	US 220 & NC 68 NC 87 & SR 1533 NC 135 & NC 770	17 16 15

When analyzing intersections with a high number of accidents, one must understand the significants of the total number per location. The intersection of higher classified facilities should produce a higher number of accidents. Because of the large traffic volumes on these facilities, and therefore increased conflicting movements at the intersection, it is expected that these facilities will experience a higher number of accidents.

Each intersection was analyzed separately, and a field investigation was conducted in recommending any site distance or geometrical improvements. See Chapter VII for recommendations.

### Bridge Classification

Bridges are a vital and unique element of a highway system. First, they represent the highest unit of investment of all elements of the system. Second, any inadequacy or defect in a bridge reduces the value of the total investment. Third, a bridge represents the greatest opportunity of all potential highway failures. Finally, and most important, a bridge represents the greatest opportunity of all highway failures for loss of life. For these reasons it is imperative that bridges be constructed to the same design standards as the highway system.

Congress enacted the National Bridge Inspection Program Standards on April 27, 1971, implementing the Federal Highway Act of 1968. These standards require that "all structures defined as bridges located on any of the Federal-Aid Highway Systems be inspected and the safe load carrying capacity computed at regular intervals, not to exceed two years."

The North Carolina Department of Transportation Bridge
Maintenance unit set forth standards for evaluating existing bridge
structures. A sufficiency index number has been calculated for each
bridge for the purpose of establishing eligibility and priority for
replacement. The bridges with the highest priority are replaced as
Federal-Aid funds and State funds are made available.

A sufficiency rating was used in the analysis to determine the deficiency of each bridge. The sufficiency rating is a method of evaluating factors that determine whether a bridge is sufficient to remain in service. Factors used include: structural adequacy and safety, serviceability and functional obsolescence, essentiality for public use, type of structure, and traffic safety features. The result of this method is a percentage. One hundred percent represents an entirely sufficient bridge and zero percent represents an entirely insufficient or deficient bridge. A sufficiency rating of 50 percent or less qualifies for Federal Bridge Replacement Funds.

The coding guide for North Carolina Bridge Inventory is based on the standards set forth by the Federal Highway Administration (FHWA).

The two different classifications for bridges in need of rehabilitation are as follows:

Structurally Deficient:

Condition rating of 4 or less for either of the following:

- Deck Superstructure Substructure
- An appraisal rating of 2 or less for either of the following:
  - Structural Condition
  - Waterway Adequacy

Functionally Obsolete: An appraisal rating of 3 or less in either of the following:

- Structural condition
- Waterway adequacy
- Deck Geometry
- Under ClearanceApproach Roadway Alignment

Tables 9 and 10 show structurally deficient and functionally obsolete bridges with sufficiency ratings of 50 percent or less. Only those bridges with ratings of 50 percent or less are eligible for federal bridge replacement funds. The locations of these bridges are in Figure 11.

					9	TABLE				
	ounty	mance Cou	Ala	in A	iges	ent Bri	icie	Defic	turally	Struc
									Suffici Ratir	
	E CRK	ALAMANCE	<u>a</u>	2309	SR	107	*	2 *	7.2	1
		HAW RIVER				101				2
CR	G QTR	STINKING	æ	1130	SR	124	*	* *	16.9	3
	S CRK	JORDAN'S	@	1763	SR	43		7	18.7	4
	REEK	OLIVE CRE	<u>a</u>	2104	SR	254		7	18.7	5
		BOYD'S CF				195		)	19.0	6
CR:	G QTR	STINKING	@	1129	SR	326	*	7 *	19.7	7
	CREEK	MARY'S CF	@	2334	SR	328			19.8	8
RV	F HAW	PRONG OF	@	1529	SR	2	*	*	19.9	9
		CREEK	@	2109	SR	93	*	*	20.0	10

<sup>\*</sup> Included in the Transportation Improvement Program.

TABLE 9 (continued) Structurally Deficient Bridges in Caswell County Features Sufficiency Bridge Map Rating No. Intersected Index 12.1 \* 110 SR 1500 @ HOGAN'S CRK 36 SR 1521 @ S FORK RATTLESN
43 SR 1321 @ MOON CRK
9 SR 1580 @ HYCO CREEK
11 SR 1565 @ CNTRY LINE CRK
35 SR 1523 @ N FORK RATTLESN
111 SR 1500 @ MOON CREEK \* 36 12.3 3 18.5 4 22.0 22.1 5 6 22.4 22.4 22.4 \* 111 39 7 39 SR 1503 @ HOGAN'S CRK 8 24.4 33 SR 1100 @ TOM'S CREEK 6 SR 1722 @ PANTHER CRK 24.7 9 25.2 10 Structurally Deficient Bridges in Davidson County Map Sufficiency Bridge Features Index Rating No. Intersected 2.0 \* 342 2.0 \* 190 SR 2185 @ HPT&D K.K. 4.0 \* 57 SR 1242 @ SWEARING CRK 4.0 166 SR 2775 @ KENDALL CRK SP 1254 @ CREEK 2.0 \* 342 SR 1800 @ RICH CREEK 2 3 4 4.0 5 8.9 11.3 66 SR 1468 @ PRONG OF REEDY

\* 33 SR 1537 @ MUDDY CRK

\* 460 SR 1318 @ BRANCH OF SWRNG

\* 201 SR 1104 @ SWEARING CRK 6 7 11.4 12.3 8 9 13.3 230 10 15.0 SR 2250 @ CREEK

<sup>\*</sup> Included in the Transportation Improvement Program.

			TABLE	9	(cont	in	ued)
Struc	turally D	efic	ient Bri	.dge	s in (	Gu	ilford County
Map	Sufficie	ncy	Bridge		F	ea	tures
Index	Rating		No.		Int	er:	sected 
1	7.0		68	CD	1522	a	CREEK
1 2	7.0 8.7		243				LIL ALAMANCE CR
3							E PRONG DEEP RV
4	13.3		78 308				DEEP RIVER
5	17.0		374				I-40/I85
6	17.5		19				SOUTHERN R.R.
7	10 2		76	CD			I-40
8	18.6	*	213	SR			LIL ALAMANCE CF
9	19.1		185	SR			HAW RIVER
10	19.8		227	CD			LIL ALAMANCE CF
10	19.8		441	SR	3000	_	DID ADAMANCE CA
		efic:					ndolph County
Struc	turally D		ient Bri	.dge:	s in 1	Rai	ndolph County
Struc	turally D	ncy	ient Bri	.dge:	s in F	<b>Ra</b> ı	ndolph County
<b>Struc</b> Map	turally D	ncy	<b>ient Bri</b> Bridge	.dge:	s in 1	<b>Ra</b> ı	ndolph County
Struc Map Index	Sufficient Rating	ncy	ient Bri Bridge No.	.dge	For Interest	Rai ea er:	ndolph County tures sected
Map Index	turally D	ncy	ient Bri Bridge No.	.dge:	For Interest 1921	ea er:	ndolph County
Struc Map Index	Sufficient Rating	ncy *	ient Bri Bridge No.	.dge:	For Interest 1921 1917	eater:	ndolph County tures sected DEEP RIVER
Map Index  1 2 3 4	Sufficient Rating	ncy *	Bridge No.  100 88	.dge:	For Interest 1921 1917 1140	eater:	ndolph County  tures sected  DEEP RIVER MUDDY CRK
Map Index  1 2 3 4 5	Sufficient Rating 13.6 13.6 14.2	ncy *	ient Bri Bridge No. 100 88 351 382	SR SR SR SR SR	For Interest 1921 1917 1140 1135	eater:	ndolph County  tures sected  DEEP RIVER MUDDY CRK LITTLE RIVER
Map Index  1 2 3 4 5 6	Sufficient Rating 13.6 13.6 14.2 15.1 15.8 18.4	*	ient Bri Bridge No 100 88 351 382 7 63	SR SR SR SR SR SR SR	For Interest 1921 1917 1140 1135 1127 1549	eater:	ndolph County  tures sected  DEEP RIVER MUDDY CRK LITTLE RIVER LITTLE RIVER REED CREEK UWHARRIE RIVER
Map Index  1 2 3 4 5 6 7	Sufficient Rating	*	Bridge No.  100 88 351 382 7 63 66	SR SR SR SR SR SR SR	For Interpretation 1921 1917 1140 1135 1127 1549 1412	eater:	ndolph County  tures sected  DEEP RIVER MUDDY CRK LITTLE RIVER LITTLE RIVER REED CREEK UWHARRIE RIVER CARAWAY CRK
Map Index  1 2 3 4 5 6 7	Sufficie: Rating 13.6 13.6 14.2 15.1 15.8 18.4 18.6 18.6	* * *	Bridge No.  100 88 351 382 7 63 66 152	SR SR SR SR SR SR SR SR	For Interpretation 1921 1917 1140 1135 1127 1549 1412 2448	ear:	ndolph County  tures sected  DEEP RIVER MUDDY CRK LITTLE RIVER LITTLE RIVER REED CREEK UWHARRIE RIVER CARAWAY CRK SANDY CRK
Map Index  1 2 3 4 5 6 7	Sufficient Rating	* * *	Bridge No.  100 88 351 382 7 63 66 152 123	SR SR SR SR SR SR SR SR SR	For Interpretation 1921 1917 1140 1135 1127 1549 1412 2448	ea: - @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@	ndolph County  tures sected  DEEP RIVER MUDDY CRK LITTLE RIVER LITTLE RIVER REED CREEK UWHARRIE RIVER CARAWAY CRK

<sup>\*</sup> Included in the Transportation Improvement Program.

TABLE 9 (continued) Structurally Deficient Bridges in Rockingham County Sufficiency Bridge Features Map Index Rating No. Intersected 181 SR 1501 @ MATRIMONY CRK 9.3 75 2 15.8 NC 700 @ SMITH CREEK 55 \* 161 16.7 55 3 SR 1138 @ PRONG OF DAN RV SR 1358 @ MAYO RIVER 4 17.8 \* 94 97 84 SR 2572 @ HOGAN'S CRK 5 18.0 6 19.0 SR 1925 @ WOLF ISL. CRK 7 19.0 SR 2579 @ JONES CREEK \* 243 8 19.0 SR 1378 @ N&W R.R. \* 16 16 SR 2351 @ TROUBLESOME CRK 32 SR 2361 @ JACOB'S CRK 21.3 9 21.8 10

<sup>\*</sup> Included in the Transportation Improvement Program.

		TABLI	E 10
Fun	ctionally Obs	solete Br	idges in Alamance County
Map Index	Sufficiency Rating	Bridge No.	Location
1 2 3 4 5 6 7 8 9	35.2 36.1 38.2 39.6 40.3 41.2 42.8 43.2 44.0 46.7	111 S 79 S 6 S 99 S * 13 S 155 S 96 S 146 S	SR 1584 @ BUTTERMILK CREEK SR 2351 @ CANE CREEK SR 2131 @ HAW CREEK SR 1504 @ TRAVIS CREEK SR 2338 @ PRONG MARY' CRK SR 1530 @ HAW RIVER SR 1928 @ I-40/I-85 SR 2116 @ MEADOW CREEK SR 2363 @ ROCK CREEK SR 1007 @ HAW CREEK

<sup>\*</sup> Included in the Transportation Improvement Program.

		TABI	LE 10(continued)
Fun	ctionally Obs	olete B	ridges in Caswell County
Map Index	Sufficiency Rating		Location
1 2 3 4 5 6 7 8 9 10	36.3 36.3 37.0 42.9 43.2 46.5 48.0	29 70 72 85 24 46 78 2 	SR 1104 @ GRAY'S BRANCH SR 1723 @ LYNCH CREEK SR 1565 @ PRONG CTRY LINE CONTROL OF CONTR
			ridges in Davidson County
Map		_	Tanahian
Map Index 	Sufficiency Rating	No.	Location

 $<sup>^{\</sup>star}$  Included in the Transportation Improvement Program.

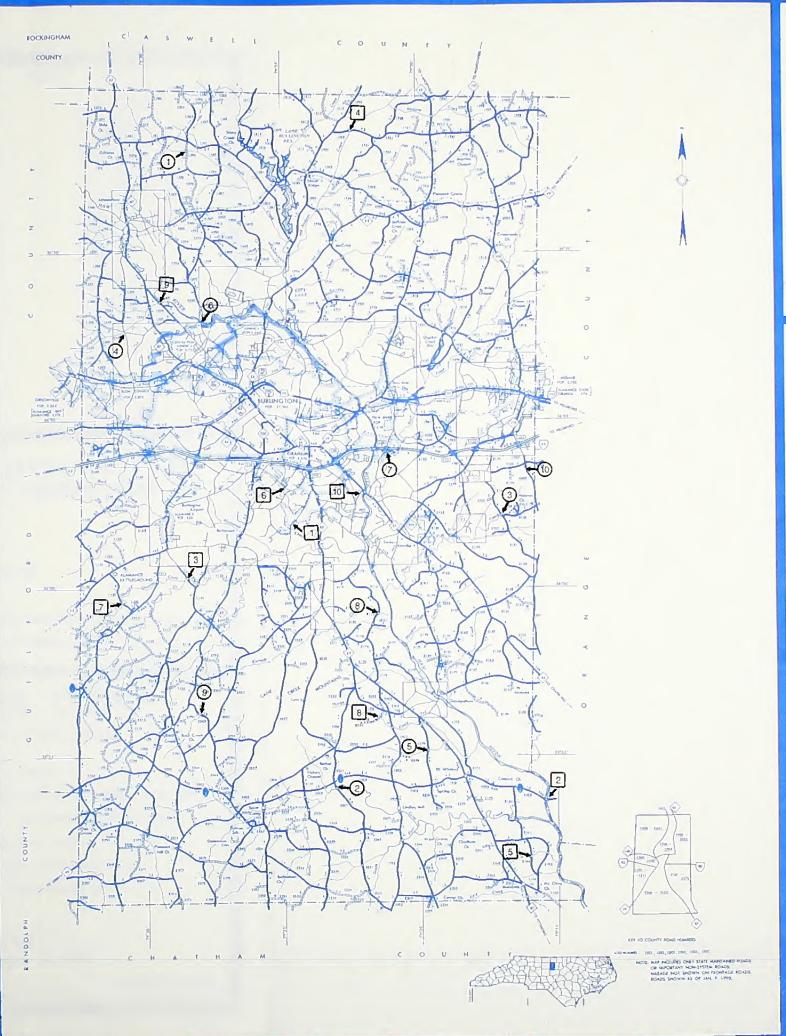
ford County	Guilf	n	ges i	Brid	Obsolete	ctionally	Fun
						Sufficien	
on 	catio 	Lo			No.	Rating	Index 
NG HORSEPEN	PRON	<u>a</u>	2177	SR	99	35.1	1
ISTOR'S CRK			1140		34	35.3	2
FALO CREEK	BUFF	a	2770	SR	194	38.8	3
1CH	BRAN	a	3175	SR	373	38.9	4
BUFFALO CRK			2821		161	39.9	5
KORY CREEK	HICK	a	1132	SR	29	40.0	6
E CAT CREEK				SR	26	42.1	7
E CAT CREEK	POLE	@	3433	SR	2.3	43.9	8
1CH	BRAN	<u>a</u>	1839	SR	79	44.0	9
SH CREEK	BRUS	@	3827		104	44.2	10
olph County	Rando	n :	jes i	Brid	Obsolete	ctionally	Fun
				je	cy Bridg	Sufficien	Map
	Rando catio			je	cy Bridg	Sufficien	
on	catio	Lo:		je 	cy Brido No.	Sufficien Rating	Map Index
on 	catio	Lo 	1406	je  SR	cy Bridg No. 	Sufficien Rating 	Map Index 
on 	catio  UWHA CREE	Lo. 	1406 1114	je  SR	cy Bridg No. 	Sufficien Rating	Map Index  1 2
on  ARRIE RIVER	Catio	Lo.  @ @ @	1406 1114 1944	ge SR SR SR	cy Bridg No.  * 52 24	Sufficien Rating  35.1 36.2	Map Index 
On ARRIE RIVER EK DY CREEK TLE UWHARRIE	Catio	Lo:  @ @ @ @	1406 1114 1944 1404	ge SR SR SR SR	cy Bridg No.  * 52 24 94	Sufficien Rating  35.1 36.2 39.7 41.2	Map Index  1 2 3 4
On ARRIE RIVER EK DY CREEK TLE UWHARRIE	Catio UWHA CREE MUDD LITT CREE	Lo.  @ @ @ @	1406 1114 1944 1404 2215	ge SR SR SR SR SR	cy Bridg No.  * 52 24 94 * 59	Sufficien Rating  35.1 36.2 39.7	Map Index  1 2 3
ARRIE RIVER EK DY CREEK PLE UWHARRIE	Catio UWHA CREE MUDD LITT CREE	Lo.  @ @ @ @ @	1406 1114 1944 1404 2215 1545	ge SR SR SR SR SR SR	cy Bridg No.  * 52 24 94 * 59 140 67	Sufficien Rating  35.1 36.2 39.7 41.2 42.0	Map Index  1 2 3 4 5
ARRIE RIVER EK DY CREEK PLE UWHARRIE	UWHA CREE MUDD LITT CREE UWHA CREE	Lo.  @ @ @ @ @ @ @ @ @	1406 1114 1944 1404 2215 1545	SR SR SR SR SR SR SR SR	cy Bridg No.  * 52 24 94 * 59 140 67 * 428	Sufficien Rating  35.1 36.2 39.7 41.2 42.0 42.8	Map Index  1 2 3 4 5
ARRIE RIVER EK DY CREEK PLE UWHARRIE EK ARRIE RIVER EK	UWHA CREE MUDD LITT CREE UWHA CREE		1406 1114 1944 1404 2215 1545 1952 1107	SR SR SR SR SR SR SR SR	cy Bridg No.  * 52 24 94 * 59 140 67 * 428	Sufficien Rating  35.1 36.2 39.7 41.2 42.0 42.8 44.2	Map Index  1 2 3 4 5 6 7

<sup>\*</sup> Included in the Transportation Improvement Program.

#### **TABLE 10** (continued) Functionally Obsolete Bridges in Rockingham County Sufficiency Bridge Map Index Rating No. Location 36.1 107 SR 1768 @ WILLIAMSON CREEK 2 85 SR 2600 @ SOUTHERN R.R. 40.8 233 3 43.2 SR 1964 @ DAN RIVER 67 US 311 @ LIL BEAVER ISLAND 4 44.6 33 56 SR 2359 @ CREEK 5 47.6 6 47.9 SR 2670 @ US 29 BUS 165 7 48.8 SR 1376 @ CREEK 120 8 48.9 SR 2150 @ BIG BRANCH 9 49.1 142 SR 1324 @ PRONG BEAVER ISLAND 49.9 54 NC 65 @ ROCKHORSE CREEK 10

<sup>\*</sup> Included in the Transportation Improvement Program.







LEGEND

STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE BRIDGES

LEGEND

-STRUCTURALLY DEFICIENT BRIDGES
-FUNCTIONALLY OBSOLETE BRIDGES

### FIGURE 11A

### **ALAMANCE COUNTY**

NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH

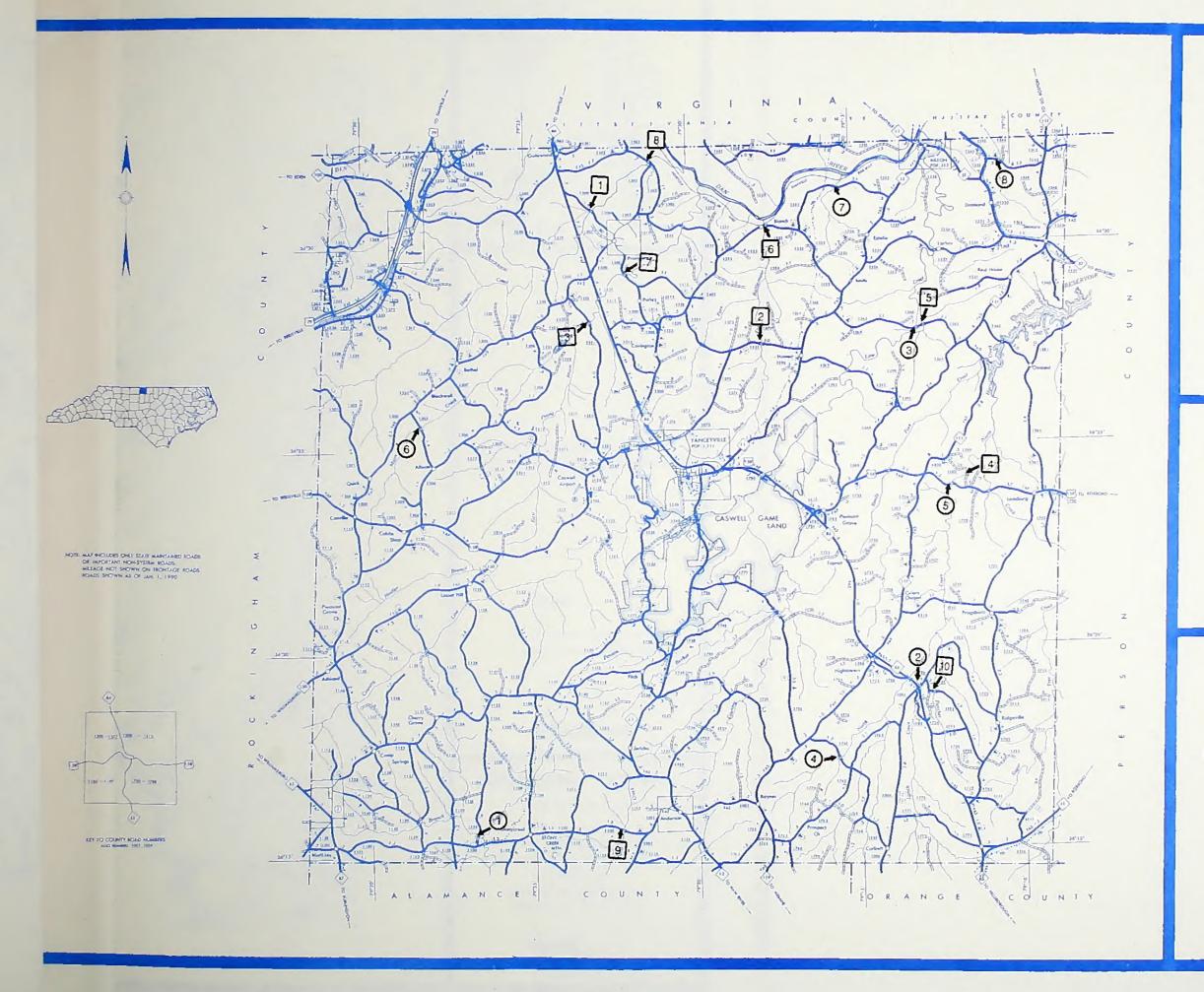
IN COOPERATION WITH

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION











# STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE BRIDGES

### LEGEND

- STRUCTURALLY DEFICIENT BRIDGES
- FUNCTIONALLY OBSOLETE BRIDGES

### **CASWELL COUNTY**

NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH

IN COOPERATION WITH

U.S. DEPARTMENT OF TRANSPORTATION

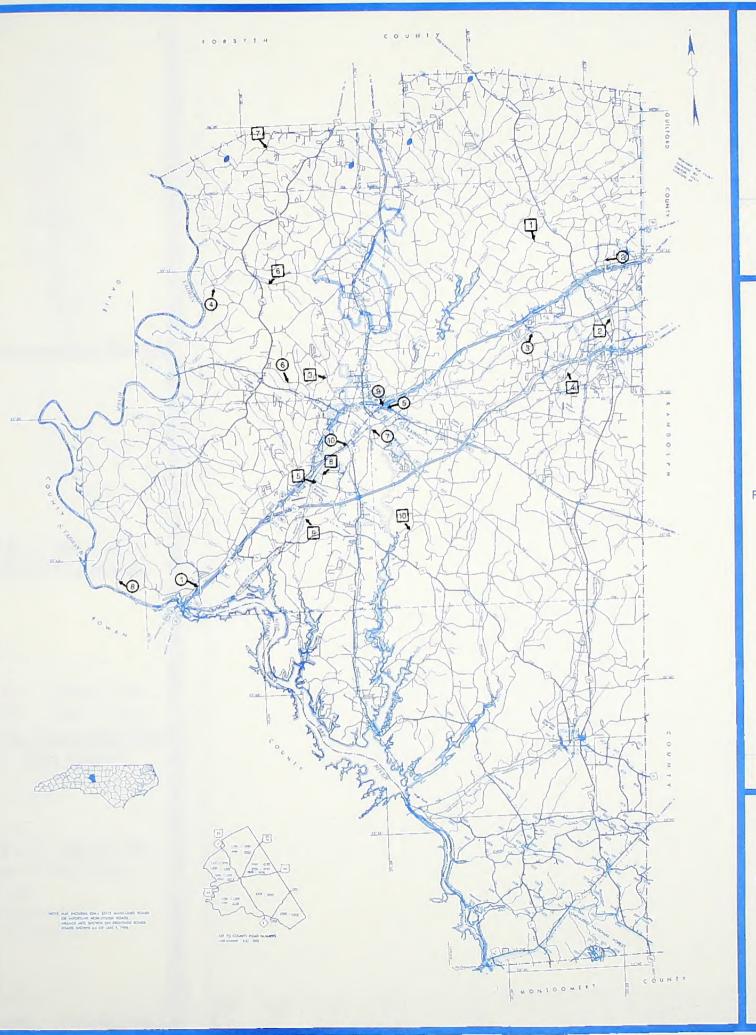
FEDERAL HIGHWAY ADMINISTRATION



BASE: 1992

FIGURE 11B







STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE BRIDGES

LEGEND

STRUCTURALLY DEFICIENT BRIDGES
O-FUNCTIONALLY OBSOLETE BRIDGES

FIGURE 11C

### DAVIDSON COUNTY

NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH

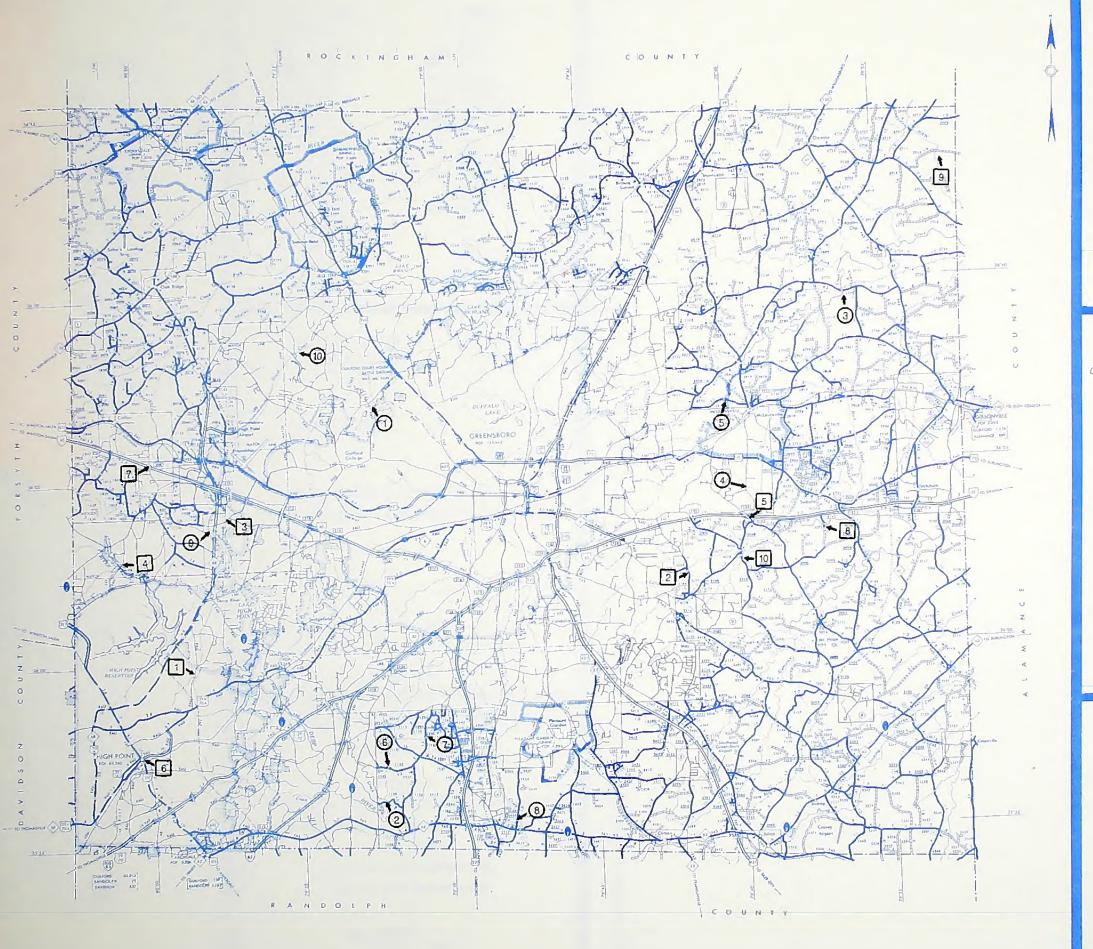
IN COOPERATION WITH

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION







### LEGEND





### STRUCTURALLY DEFICIENT AND **FUNCTIONALLY OBSOLETE BRIDGES**

### **LEGEND**

-STRUCTURALLY DEFICIENT BRIDGES O-FUNCTIONALLY OBSOLETE BRIDGES

### **GUILFORD COUNTY**

NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH

IN COOPERATION WITH

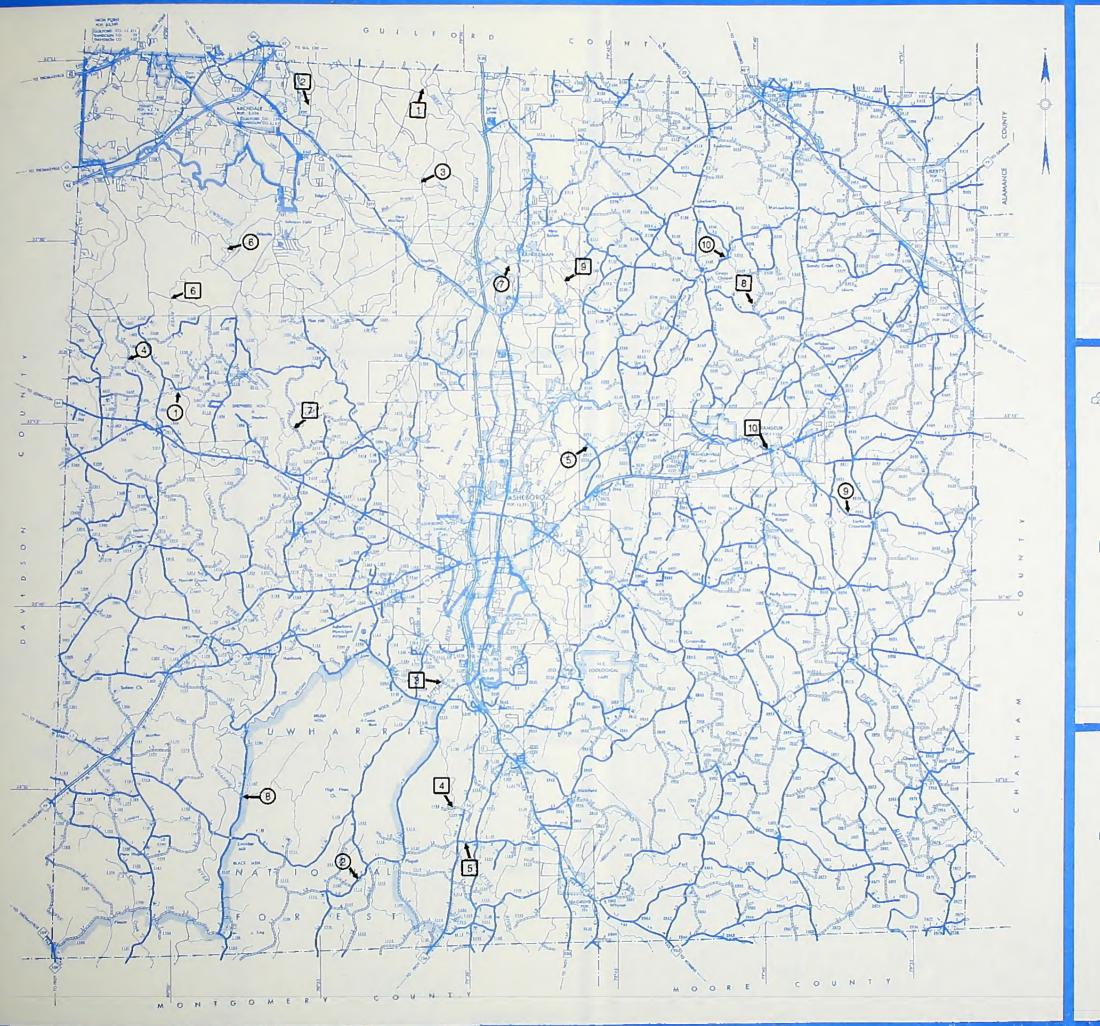
U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION



FIGURE 11D





### LEGEND





## STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE BRIDGES

### LEGEND

☐ ←STRUCTURALLY DEFICIENT BRIDGES
☐ ←FUNCTIONALLY OBSOLETE BRIDGES

FIGURE 11E

### **RANDOLPH COUNTY**

NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH

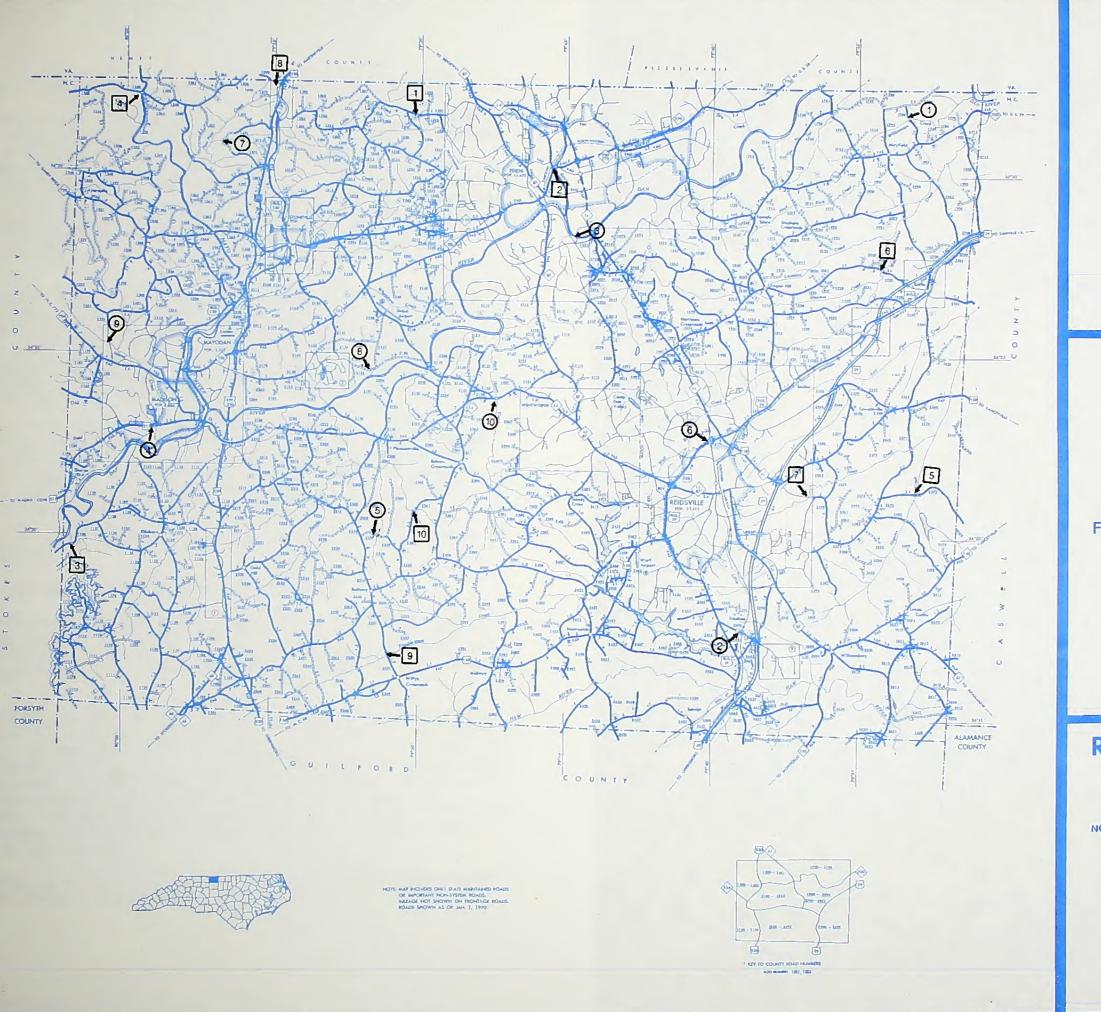
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FEDERAL HIGHWAY ADMINISTRATION











# STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE BRIDGES

LEGEND

O -- STRUCTURALLY DEFICIENT BRIDGES
O -- FUNCTIONALLY OBSOLETE BRIDGES

#### **ROCKINGHAM COUNTY**

NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH

IN COOPERATION WITH

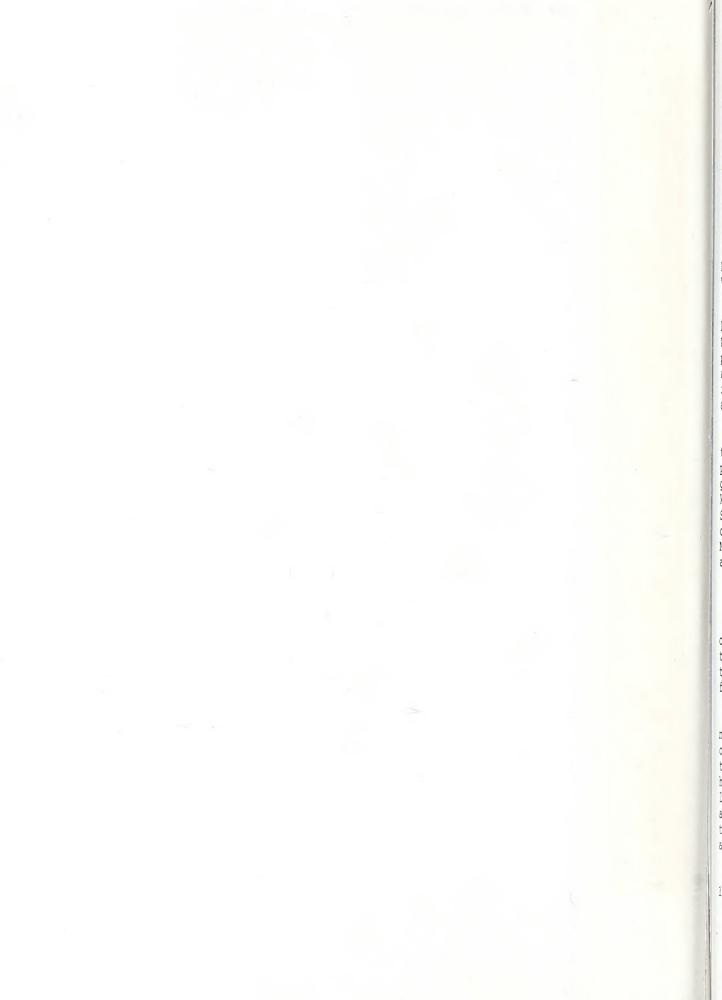
U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION



BASE: 1992

FIGURE 11F



#### Environment, Historical Landmarks, and Endangered Species

During a study a major concern is the effects of development on the environment. Any new location whether it is a bridge or highway will have a direct effect on its surroundings. Since a major concern for the Region is the protection of its undeveloped land, it is desirable to limit any unnecessary highway development in rural areas. Region 'G', located in the Piedmont section of the State has a considerable amount of wetland areas. To limit the destruction in these areas, wetland maps are used to plot the best route for proposed facilities with the least amount of disruption to the wetlands.

The thoroughfare plan has taken into consideration several historical landmarks. Widening projects that require additional Right of Way must also consider its affect on adjacent historic property. Noise, vibrations, and vehicle emissions could damage and eventually lead to the destruction of historic property. This is why it is imperative that historic landmarks are properly addressed prior to the implementation of any improvement.

Further steps were taken in conserving endangered and threatened wildlife and plants. The N.C. Natural Heritage Program provided information and listings of elements (rare species, geologic features, natural communities, special animal habitats) known to occur in the geographic area of interest. Federal and State laws protect most endangered plant and wildlife with conservation acts. It was therefore necessary to work with the National Heritage Program in avoiding interference or disturbance of any natural habitation.

#### Transportation Improvement Program

The North Carolina Transportation Improvement Program (TIP) was organized to inform North Carolina citizens of any developments in the State Highway System. Approved by the Board of Transportation, the Department encourages any local input into the planning process for the TIP.

The highway portion of the TIP includes some of the projects needed to complete the remaining 1,704 miles of four-lane highways on the 3,600 mile Intrastate System. Once completed, 96 percent of the State's citizens will be within 10 miles of a modern four-lane highway. The program also contains multi-lane connector routes and loop roads around seven of the State's major urban areas. In addition, projects that address the most critical local and regional transportation needs are included in the program - to the extent available funding would allow.

The following is a list of projects that are scheduled in the 1995-2001 Transportation Improvement Program (TIP) for Region 'G'.

	HIGHV	HIGHWAY PROGRAM				ALAMANCE COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH (MI) (KM)	TOTAL EST. COST (THOU)	PRIOR YEARS COST (THOU)	WORK TYPE SCHEDULE (FUNDING) FEDERAL FISCAL YEAR EST. COST (THOU) 95 96 97 98 99 00 01
1-40/85	1-303 *	WEST OF US 421 TO NC 54. WIDEN FOUR LANE FREEWAY TO EIGHT LANES.	21.9	114308	114308	C(1R) * C(1 ) C(1 ) PART COMPLETE - UNDER CONSTRUCTION
1-40/85	* * * * *	EAST OF NC 54 (EXIT 148) TO WEST OF SR 1134. WIDEN FOUR LANE FREEWAY TO EIGHT LANES, AND GRADING, DRAINAGE AND PAVING FOR WEIGH STATION, 1-2306.	13.5	50808	50808	C(IM ) ***********************************
1-40/85	1-1021	GUILFORD COUNTY LINE TO DURHAM COUNTY LINE INCLUDING 1-40 IN ORANGE COUNTY. LOGO SIGNING.	43.0	420		C(1M ) 420
NC 49-62	R-2543	US 70 TO US 158. UPGRADE ROADWAY AND CONSTRUCT MULTI-LANES AT SELECTED LOCATIONS.	30.9	16880	200	R(STP) 5730 R(\$ ) 600 C(STP) 9300 C(\$ ) 1050
NC 54	R-2538	SR 2106 (WHITTEMORE LOOP) TO NC 119. WIDEN TO A FIVE LANE CURB AND GUTTER FACILITY.	5.2 5.3	8900		R(STP) 700 C(STP) 8200
us 70	R-2910	SR 3056 IN GUILFORD COUNTY TO SR 1309 IN ALAMANCE COUNTY. WIDEN ROADWAY TO A FIVE LANE CURB AND GUTTER FACILITY.	4.2 6.8	8000		IDENTIFIED FUTURE NEED
NC 87	R-2560	SR 1547 IN ALAMANCE COUNTY TO US 29 IN REIDSVILLE. WIDEN ROADWAY TO A FOUR LANE DIVIDED FACILITY.	30.7	7400	80	C(STP) 4075 C(STP) 8200 POST YEAR ROW AND CONSTRUCTION-35045
	* INDICAT	* INDICATES INTRASTATE PROJECT		ALL SCHED	ULES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

	HIGHV	HIGHWAY PROGRAM				ALAMANCE COUNTY	
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01	
NC 119	R-3105	SOUTH OF SR 1917 IN ALAMANCE COUNTY TO NC 62 IN CASWELL COUNTY. WIDEN NC 119 IN ALAMANCE COUNTY TO SR 1901 AND CONSTRUCT A CONNECTOR TO NC 62 ON NEW LOCATION.	10.D 16.1	13600		IDENTIFIED FUTURE NEED	
BURL I NGTON GRAHAM	U-241D	SR 1716 (GRAHAM-HOPEDALE ROAD), PROVIDENCE ROAD TO US 7D. WIDEN ROADWAY TO MULTI-LANES.	1.2	7400		R(STP) 4,30D C(STP) 310D	
BURL 1 NGTON	U-2502	NC 87 NORTHEAST BYPASS, NC 87 SOUTH TO NC 87 NORTH. MULTI-LANE FACILITY, PART ON NEW LOCATION.	13.3	4450D		IDENTIFIED FUTURE NEED	
BURLINGTON	U-2802	O'NEAL STREET, US 70 (CHURCH STREET) TO SR 1323 (FRONT STREET). CONSTRUCT A CURB AND GUTTER FACILITY ON NEW LOCATION.	1.4 2.3	1762	262	C(S ) 150D	
BURLINGTON	U-2905	ST. MARKS CHURCH ROAD, SR 1146 (KIRKPATRICK ROAD) TO US 70. CONSTRUCT MULTI-LANES ON NEW LOCATION WITH AN INTERCHANGE AT 1-4D/85.	4.2	18000		R(STP) 360D C(STP) 1440D	
BURLINGTON	U-29b6	NC 62 (ALAMANCE ROAD), HEATHER STREET TO US 70 (CHURCH STREET). WIDEN ROADWAY TO A FIVE LANE CURB AND GUTTER FACILITY.	- E	3800		R(STP) 230D RST YEAR CONSTRUCTION-15DD	
BURLINGTON	U-2907	NC 54, NC 100 (MAPLE AVENUE) TO US 7D (CHURCH STREET). WIDEN ROADWAY TO A FIVE LANE CURB AND GUTTER FACILITY.	3.6 5.8	7500		R(STP) 28DD POST YEAR CONSTRUCTION-470D	
	* INDICA	* INDICATES INTRASTATE PROJECT	۷	LL SCHED	OULES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS	

	HIGHV	HIGHWAY PROGRAM				ALAMANCE COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
BURLINGTON	U-3303	SR 1306-SR 1363 (MEBANE STREET), SR 1158 HUFFMAN MILL ROAD) TO NC 54 (CHAPEL HILL ROAD). WIDEN ROADWAY TO A FIVE LANE FACILITY.				SCHEDULED FOR FEASIBILITY STUDY
BURLINGTON	U-3304	NEW ROUTE, GRAND OAKS BLVD TO KIRKPATRICK ROAD. WIDEN ROADWAY TO FIVE LANES, SOME ON NEW LOCATION.	٠,			SCHEDULED FOR FEASIBILITY STUDY
ELON COLLEGE	n-2406	ELON COLLEGE BYPASS, NC 100 (WEST) TO NC 100 (EAST). CONSTRUCT TWO LANE FACILITY ON NEW LOCATION.	2.5	6150	100	P ************************************
<b>С</b> ВАНАМ	U-2411	MAPLE STREET EXTENSION TO NC 87 AT MOORE STREET. CONSTRUCT TWO LANE FACILITY ON NEW LOCATION.	7.7	3662	. 05	P ************************************
MEBANE	U-2546	US 70, HAW RIVER BYPASS TO MEBANE CITY LIMITS. WIDEN ROADWAY TO A MULTI-LANE FACILITY.	4.6	14100		IDENTIFIED FUTURE NEED
MEBANE	U-3109	NC 119 RELOCATION, 1-85 TO SOUTH OF SR 1917. CONSTRUCT A NEW TWO LANE FACILITY ON NEW LOCATION.	6.8	22500		C(STP) 12700 C(STP) 12700 POST YEAR CONSTRUCTION-5800
NEW ROUTE	U-3110	SR 1311 (COOK ROAD) AND SR 1301 (SHALLOWFORD CHURCH ROAD). UPGRADE EXISTING ROADWAYS AND CONSTRUCT CONNECTORS TO PROVIDE A CONTINUOUS ROUTE BETWEEN US 70 AT ST. MARKS CHURCH ROAD RELOCATION AND NC 87.	·		w/	SCHEDULED FOR PLANNING/ENVIRONMENTAL STUDIES ONLY
NC 62	8-2501	BIG ALAMANCE CREEK. REPLACE BRIDGE NO. 12		1670	130	R(FA ) 240 RIGHT OF WAY - FFY 96 C(FA ) 1300 CONSTRUCTION - FFY 97
	* INDICA	* INDICATES INTRASTATE PROJECT	A	LL SCHED	ULES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

c	HIGHW	HIGHWAY PROGRAM				ALAMANCE COUNTY	
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00	10
SR 1005	B-2100	HAW RIVER. REPLACE BRIDGE NO. 101	•	2170	2170	C(FA ) UNDER CONSTRUCTION	
SR 1129	B-2900	STINKING QUARTER CREEK. REPLACE BRIDGE NO. 326	,	355		R(POC) 30 RIGHT OF WAY - FFY 97 C(POC) 325 CONSTRUCTION - FFY 98	
sr 1130	B-2000	STINKING QUARTER CREEK. REPLACE BRIDGE NO. 124	•	683	683	C(NFA) UNDER CONSTRUCTION	
sr 1529	B-2801	PRONG OF HAW RIVER. REPLACE BRIDGE NO. 2	ı	927		R(NFA) 46 RIGHT OF WAY - FFY 96 C(NFA) 380 CONSTRUCTION - FFY 97	
SR 1530	B-2802	HAW RIVER. REPLACE BRIDGE NO. 13	ı	855		R(FA ) 55 RIGHT OF WAY - FFY 96 C(FA ) 800 CONSTRUCTION - FFY 97	
SR 2109	B-2101	CREEK. REPLACE BRIDGE NO. 93	•	230	230	C(POC) UNDER CONSTRUCTION	
SR 2338	B-2901	MARY'S CREEK. REPLACE BRIDGE NO. 100	1	175		C(POC) 175 CONSTRUCTION - FFY 99	
AMTRAK	P-2908 A	TRAIN 79/80 OPERATIONS.	ı	4920	2164	C(S ) 2756 OPERATIONS - FFY 95-96-97-98 IN PROGRESS	
AMTRAK	P-2918	TRAIN 2 OPERATIONS.	٠.	9200	007	C(S ) 8800 OPERATIONS - FFY 95-96-97-98 IN PROGRESS	
AMTRAK	P-2919	REFURBISH FIVE (5) RAIL CARS.	ı	3144	5694	C(S ) 450 CONSTRUCTION - FFY 95 FOUR CARS COMPLETE	
AMTRAK	P-2932 A	TRACK AND SIGNAL IMPROVEMENTS.	•	10181	2683	C(STP) 609 CONSTRUCTION - FFY 95 C(NHS) 5382 CONSTRUCTION - FFY 95-96-97 C(S ) 1507 CONSTRUCTION - FFY 95-96-97 IN PROGRESS	
NORFOLK SOUTHERN	P-2935	CHARLOTTE TO RALEIGH, RAIL CROSSING INVENTORY	ı	200	200	C(HSR) IN PROGRESS	
BURL INGTON	Y-2947B	SR 1530 (ELMIRA STREET) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 814N. REVISE AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.	•	92	92	C(RR ) UNDER CONSTRUCTION	
	* INDICAT	* INDICATES INTRASTATE PROJECT	4	LL SCHED	ULES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS	

	HIGHV	HIGHWAY PROGRAM			•	ALAMANCE COUNTY	
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 (	00 01
ELON COLLEGE	Y-2947C	CHURCH STREET AT NORFOLK SOUTHERN RAILWAY CROSSING 722 993G. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		62	62	C(RR ) UNDER CONSTRUCTION	
MEBANE	Y-2947A	SR 1962 (THIRD STREET) AT NORFOLK SOUTHERN RAILWAY CROSSING 735 469V. REVISE AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		75		C(RR ) 75 CONSTRUCTION - FFY 95	
MEBANE	۲-29471	FOURTH STREET AT NORFOLK SOUTHERN RAILWAY CROSSING 735 471W. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		80	80	C(RR ) UNDER CONSTRUCTION	
ELON COLLEGE	2-2847A	ANTIOCH AVENUE AT NORFOLK SOUTHERN RAILROAD CROSSING 722 996C. INSTALL AUTOMATIC WARNING DEVICES.		22	77	C(RR ) UNDER CONSTRUCTION	
GIBSONVILLE	2-28478	HUFFINES STREET AT NORFOLK SOUTHERN RAILROAD CROSSING 722 9911. INSTALL AUTOMATIC WARNING DEVICES.	-1	77	22	C(RR ) UNDER CONSTRUCTION	

	HIGHV	HIGHWAY PROGRAM				CASWELL COUNTY
ROUTE/CITY	D NO.	LOCATION AND DESCRIPTION	LENGTH (MI) (KM)	TOTAL EST. COST (THOU)	PRIOR YEARS COST (THOU)	WORK TYPE SCHEDULE (FUNDING) FEDERAL FISCAL YEAR EST. COST (THOU) 95 96 97 98 99 00 01
NC 49-62	R-2543	US 70 TO US 158. UPGRADE ROADWAY AND CONSTRUCT MULTI-LANES AT SELECTED LOCATIONS.	30.9	16880	200	R(STP) 5730 R(STP) 8730 C(STP) 9300 C(STP)
NC 62	R-3103	US 158-NC 86 IN YANCEYVILLE TO NC 57 IN MILTON. WIDEN EXISTING ROADWAY TO TWENTY-TWO FEET WITH TEN FOOT SHOULOERS AND REALIGN TWO SECTIONS OF ROADWAY.	11.8	3650		C(S ) 3500 CONSTRUCTION BY DIVISION
NC 86	R-3104	US 158 MORTH OF YANGEYVILLE TO VIRGINIA STATE LINE. UPGRADE EXISTING ROADWAY.	9.0	610		C(S ) 610 CONSTRUCTION BY DIVISION
NC 87	R-2560	SR 1547 IN ALAMANCE COUNTY TO US 29 IN REIDSVILLE. WIDEN ROADWAY TO A FOUR LANE DIVIDED FACILITY.	30.7	47400	80	R(STP) 4075 C(STP) 8200 POST YEAR ROW AND CONSTRUCTION-35045
NC 119	R-3105	SOUTH OF SR 1917 IN ALAMANCE COUNTY TO NC 62 IN CASWELL COUNTY. WIDEN NC 119 IN ALAMANCE COUNTY TO SR 1901 AND CONSTRUCT A CONNECTOR TO NC 62 ON NEW LOCATION.	10.0	13600		IDENTIFIED FUTURE NEED
US 158	R-2575 *	NC 62 TO SR 1159 WEST OF ROXBORO. WIDEN ROADWAY TO A MULTI-LANE FACILITY.	30.7	36200		P POST YEAR ROW AND CONSTRUCTION-36200
US 158	R-2586 *	US 29 TO NC 62. WIDEN ROADWAY TO A MULTI- LANE FACILITY.	21.0	43100		POST YEAR ROW AND CONSTRUCTION-43100
SR 1572 SR 1526	R-3317	EXTENSION OF EXISTING ROUTES TO SECONDARY STANDARDS WITH A NEW BRIDGE CROSSING THE DAN RIVER.				SCHEDULED FOR FEASIBILITY STUDY
	* INDICAT	* INDICATES INTRASTATE PROJECT	∢	LL SCHEDI	JLES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

	HIGHV	HIGHWAY PROGRAM				CASWELL COUNTY	
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01	
SR 1100	в-3128	BENTON CREEK. REPLACE BRIDGE NO. 32		897		R(NFA) 43 RIGHT OF WAY - FFY 99 C(NFA) 425 CONSTRUCTION - FFY 00	
SR 1128	B-2939	COUNTY LINE CREEK. REPLACE BRIDGE NO. 76	,	270		R(NFA) 20 RIGHT OF WAY - FFY 97 C(NFA) 250 CONSTRUCTION - FFY 98	
SR 1146	в-3317	COUNTRY LINE CREEK. REPLACE BRIDGE NO. 23		700		R(NFA) 40 RIGHT OF WAY - FFY 00 C(NFA) 360 CONSTRUCTION - FFY 01	
SR 1330	в-3129	HOGAN'S CREEK. REPLACE BRIDGE NO. 42	•	009		R(NFA) 50 RIGHT OF WAY - FFY 99 C(NFA) 550 CONSTRUCTION - FFY 00	
SR 1500	B-2809	HOGAN'S CREEK. REPLACE BRIDGE NO. 110		1030		R(NFA) 50 RIGHT OF WAY - FFY 98 C(NFA) 980 CONSTRUCTION - FFY 99	
SR 1500	B-2810	MOON CREEK. REPLACE BRIDGE NO. 111		569		R(NFA) 20 RIGHT OF WAY - FFY 98 C(NFA) 675 CONSTRUCTION - FFY 99	
SR 1521	B-2811	SOUTH FORK RATTLESNAKE CREEK. REPLACE BRIDGE NO. 36		607		R(NFA) 29 RIGHT OF WAY - FFY 96 C(NFA) 380 CONSTRUCTION - FFY 97	
SR 1597	B-3130	COUNTRY LINE CREEK. REPLACE BRIDGE NO. 10		099		R(NFA) 60 RIGHT OF WAY - FFY 00 C(NFA) 600 CONSTRUCTION - FFY 01	
SR 1718	B-3318	CREEK. REPLACE BRIDGE NO. 68		375		R(NFA) 50 RIGHT OF WAY - FFY 00 C(NFA) 325 CONSTRUCTION - FFY 01	
SR 1736	B-3131	COUNTRY LINE CREEK. REPLACE BRIDGE NO. 71	,	077		R(NFA) 40 RIGHT OF WAY - FFY 00 C(NFA) 400 CONSTRUCTION - FFY 01	
SR 1751	B-3319	COUNTRY LINE CREEK. REPLACE BRIDGE NO. 56		325		R(NFA) 25 RIGHT OF WAY - FFY 00 C(NFA) 300 CONSTRUCTION - FFY 01	
SR 1759	B-2812	SOUTH COUNTY LINE CREEK. REPLACE BRIDGE NO. 88		361		R(NFA) 31 RIGHT OF WAY - FFY 96 C(NFA) 330 CONSTRUCTION - FFY 97	
US 29	K-2300	VISITORS INFORMATION CENTER/REST AREA NEAR VIRGINIA STATE LINE.		2265	2265	C(NHS) UNDER CONSTRUCTION	
SR 1337	Y-2948A	NEAR PELHAM AT NORFOLK SOUTHERN RAILWAY CROSSING 735 252H. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER SERVICE.		22		C(RR ) 75 CONSTRUCTION - FFY 95	
	* INDICAT	* INDICATES INTRASTATE PROJECT	A	LL SCHEDI	ULES SUB.	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS	

	HIGH	HIGHWAY PROGRAM				DAVIDSON COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH (MI) (KM)	TOTAL EST. COST (THOU)	PRIOR YEARS COST (THOU)	WORK TYPE SCHEDULE (FUNDING) FEDERAL FISCAL YEAR EST. COST (THOU) 95 96 97 98 99 00 01
1-85	1-2304	NORTH OF SR 2120 (EXIT 81) IN ROWAN COUNTY TO US 29-52-70/1-85 BUSINESS (EXIT 87). PAVEMENT AND BRIDGE RECONSTRUCTION.	6.8 10.9	49500		IDENTIFIED FUTURE NEED
	R-2300	NC 49 TO SR 2212. WIDEN ROADWAY, PART TO MULTI-LANES.	24.6 39.6	16159	525	C(STP) 5462
US 29-70 AND 1-85 BUS.	R-2808	1-85 IN DAVIDSON COUNTY TO 1-85 IN GUILFORD COUNTY. UPGRADE, SAFETY IMPROVEMENTS AND REPLACE BRIDGE NO. 74 AT SR 1627 (B-2163).	31.1	30100		C(STP) 100 C(STP) 2000 POST YEAR CONSTRUCTION-28000
NC 49	R-2534	FOUR LANE SECTION NORTH OF THE YADKIN RIVER TO THE RANDOLPH COUNTY LINE. WIDEN ROADWAY TO A FOUR LANE DIVIDED FACILITY.	9.0	18930	30	R(NHS) 1500 POST YEAR CONSTRUCTION-17400
ns 64	R-2220 *	EAST OF 1-85 BUSINESS IN LEXINGTON TO US 220 IN ASHEBORO. WIDEN ROADWAY TO FOUR LANES.	28.5	55680	006	POST YEAR ROW AND CONSTRUCTION-49930 CONSTRUCTION OF INITIAL SECTION BY DIVISION
NC 109	R-2568	I-85 BUSINESS IN THOMASVILLE TO US 311 IN WINSTON-SALEM. WIDEN ROADWAY TO A MULTI-LANE FACILITY.	13.5	42900	0007	C(STP) 14600 C(STP) 10400 Post YEAR CONSTRUCTION-17500
	* INDICA	* INDICATES INTRASTATE PROJECT	Ā	LL SCHEDI	ULES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

DAVIDSON CON   DESCRIPTION   LENGTH TOTAL PRIOR WORK TYPE 95 96 36 1755 (LEXINGTON AVENUE) 12.2 31500   IDENTIFIED FUTURE NEED TIT-LAME FACILITY   12.2 31500   IDENTIFIED FUTURE NEED TIT-LAME FACILITY   12.2 31500   IDENTIFIED FUTURE NEED TIT-LAME FACILITY   STUDY UNDER RECONSTRUCT A CONNECTOR   CONSTRUCT A CONSTRU	NTY	97 98 99 00 01			EVALUATION		***	318001108-1300	STUDY	STUDY	- FFY 99 - FFY 00	- FFY 01	- FFY 95	- FFY 98	-
1-85 AT SR 1547 1-85 AT SR 1547 17-6 31500 17-55 (LEXIMINION AVENUE) 12.2 11-LANE FACILITY.  CTURE NO. 464 AT RAIL 1-85 BUSINESS TO NC 8 17- 16AP. WIDEN ROADWAY 0.2 17- 16AP. TO THICH A CONNECTOR 17- 16AP. 1100 17- 16AP. 1100 1100 1100 1100 1100 1100 1100 110	VIDSON COU	95 96	IFIED FUTURE NEED	IFIED FUTURE NEED	BILITY STUDY UNDER REI	\$ 200 \$ 3050	800	באר כסב	ULED FOR FEASIBILITY	ULED FOR FEASIBILITY :	100 RIGHT OF WAY 1000 CONSTRUCTION	550 CONSTRUCTION	18 RIGHT OF WAY 6320 CONSTRUCTION	65 RIGHT OF WAY	
1-85 AI SR 1547 17-55 (LEXINGTON AVENUE) 12.2 17-LANE FACILITY.  CTURE NO. 464 AI RAIL  - 1370  CTURE NO. 464 AI RAIL  - 1370  CONSTRUCT A CONNECTOR  LOOP. WIDEN ROADWAY  T GRADE SEPARATION WITH  AY.  1 TO BEEK.  EEK.  1 TO CONSTRUCT	DA		IDENT		FEASI		P C R(STP		SCHED	SCHED		CCFA	R(FA C(FA	RCFA	
1-85 AT SR 1547 1755 (LEXINGTON AVENUE) 11-LANE FACILITY. CTURE NO. 464 AT RAIL CONSTRUCT A CONNECTOR CONSTRUCT A CONNECTOR TY. TY. T GRADE SEPARATION WITH AY. TY. EEK. EEK. EEK. ESS LOOP.			31500	1370		3550	2100				1100	550	6338	715	
1-85 AT SR 1547 1755 (LEXINGTON AVENUE TI-LANE FACILITY. CTURE NO. 464 AT RAIL CONSTRUCT A CONNECTOR LOOP. WIDEN ROADWAY TY. T GRADE SEPARATION WIT AY. T GRADE SEPARATION WIT AY. EEK. EEK. EEK. ESS LOOP.		LENGTH	7.6	•	× '	0.2	•		·,	ı	•	•			
	HIGHWAY PROGRAM	LOCATION AND DESCRIPTION	WESTSIDE THOROUGHFARE, 1-85 AT SR 1547 (CUCUMBER ROAD) TO SR 1755 (LEXINGTON AVENUE) WIDEN ROADWAY TO A MULTI-LANE FACILITY.			SINESS LOOP. FACILITY.	E SEPARATION WAY CROSSING		UNITY STREET, CONSTRUCT GRADE SEPARATION WITH NORFOLK SOUTHERN RAILWAY.	), BROAD STREET WIDEN ROADWAY	SR 1242 AND MICHAEL CREEK. REPLACE BRIDGE NO. 74		REPLACE BRIDGE NO.	US 29-64-70/1-85 BUSINESS LOOP. REPLACE BRIDGE NO. 27	
		ROUTE/CITY	HIGH POINT	LEXINGTON	LEXINGTON	THOMASVILLE	THOMASVILLE		THOMASVILLE	THOMASVILLE	US 29-64-70 & 1-85 BUS. NBL	US 29-64-70 & I-85 BUS. SBL	NC 49 SBL	US 52-NC 8	

	HIGH	HIGHWAY PROGRAM				DAV	DAVIDSON COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE	YPE 95 96 97 98 99 00 01
NC 109	B-2951	ABBOTTS CREEK. REPLACE BRIOGE NO. 135	i	275		R(FA ) C(FA )	50 RIGHT OF WAY - FFY 97 225 CONSTRUCTION - FFY 98
NC 109	B-3160	US 64. REPLACE BRIDGE NO. 58	•	495		R(FA ) C(FA )	45 RIGHT OF WAY - FFY 00 450 CONSTRUCTION - FFY 01
NC 150	8-2126	REEOY CREEK. REPLACE BRIOGE NO. 56	.*	678		R(FA ) C(FA )	28 RIGHT OF WAY - FFY 96 650 CONSTRUCTION - FFY 97
NC 150	8-2821	FRYES CREEK. REPLACE BRIOGE NO. 84		778		R(FA ) C(FA )	78 RIGHT OF WAY - FFY 96 700 CONSTRUCTION - FFY 97
SR 1104	8-2127	SWEARING CREEK. REPLACE BRIDGE NO. 201	•	1721	321	C(NFA)	1400 CONSTRUCTION - FFY 95
SR 1176	8-2537	HARTLEY'S CREEK. REPLACE BRIOGE NO. 4	٠,	735	100	R(NFA) C(NFA)	35 RIGHT OF WAY - FFY 95 600 CONSTRUCTION - FFY 96
SR 1186	8-2538	OYKER'S CREEK. REPLACE BRIOGE NO. 6	,	425	75	R(NFA) C(NFA)	170 RIGHT OF WAY - FFY 95 180 CONSTRUCTION - FFY 96
SR 1217	8-2539	SECONO POTTS CREEK. REPLACE BRIOGE NO. 440 WITH CULVERT		310	09	R(NFA) C(NFA)	25 RIGHT OF WAY - FFY 96 225 CONSTRUCTION - FFY 97
SR 1254	B-2128	CREEK. REPLACE BRIOGE NO. 437	٠,	537	537	C(NFA)	UNDER CONSTRUCTION
SR 1318	B-3324	BRANCH OF SWEARING CREEK. REPLACE BRIDGE NO. 460	•	300		R(NFA) C(NFA)	30 RIGHT OF WAY - FFY 00 270 CONSTRUCTION - FFY 01
SR 1396	B-2540	SWEARING CREEK. REPLACE BRIOGE NO. 257		579	80	R(NFA) C(NFA)	99 RIGHT OF WAY - FFY 95 400 CONSTRUCTION - FFY 96
SR 1417	B-3162	WINSTON-SALEM SOUTHBOUND RAILWAY. REPLACE BRIDGE NO. 61		248		R(NFA) C(NFA)	23 RIGHT OF WAY - FFY 00 225 CONSTRUCTION - FFY 01
SR 1450	B-2541	HUFFMANS CREEK. REPLACE BRIOGE NO. 26	•	777	09	R(NFA) C(NFA)	134 RIGHT OF WAY - FFY 95 250 CONSTRUCTION - FFY 96
	* INDICA	* INDICATES INTRASTATE PROJECT	<b>V</b>	гг ѕснер	ULES SUE	3JECT TO	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

\* INDICATES INTRASTATE PROJECT

DAVIDSON COUNTY

\T\	98 99 00 01	FFY 95 FFY 96	FFY 00 FFY 01	FFY 00 FFY 01	FFY 96 FFY 97	FFY 96	FFY 01	FFY 95 FFY 96	FFY 95 FFY 96	FFY 98 FFY 99	FFY 95 FFY 96	FFY 95 FFY 96	FFY 95 FFY 96	TOO TOO
DAVIDSON COUNTY	TYPE 95 96 97	30 RIGHT OF WAY - 175 CONSTRUCTION -	20 RIGHT OF WAY - 200 CONSTRUCTION -	25 RIGHT OF WAY - 250 CONSTRUCTION -	50 RIGHT OF WAY -	289 CONSTRUCTION -	200 CONSTRUCTION -	35 RIGHT OF WAY - 600 CONSTRUCTION -	41 RIGHT OF WAY - 550 CONSTRUCTION -	20 RIGHT OF WAY - 225 CONSTRUCTION -	190 RIGHT OF WAY - 650 CONSTRUCTION -	1500 RIGHT OF WAY - 400 CONSTRUCTION -	33 RIGHT OF WAY - 525 CONSTRUCTION -	235 CONSTRUCTION - POST YEAR
DA	WORK TYPE	R(NFA) C(NFA)	R(NFA) C(NFA)	R(NFA) C(NFA)	R(NFA) C(NFA)	C(POC)	(POC)	R(NFA) C(NFA)	R(NFA) C(NFA)	R(NFA) C(NFA)	C(NFA)	R(NFA) C(NFA)	R(NFA) C(NFA)	CCNEAM
	PRIOR	50						06	52		125	100	06	97
	TOTAL	255	220	275	380	289	200	725	616	245	596	2000	879	281
	LENGTH			-			•	•			•			
WAY PROGRAM	LOCATION AND DESCRIPTION	HUFFMANS CREEK. REPLACE BRIDGE NO. 50	MUDDY CREEK. REPLACE BRIDGE NO. 33	CREEK. REPLACE BRIDGE NO. 442	ABBOITS CREEK. REPLACE BRIDGE NO. 139	ABBOITS CREEK. REPLACE BRIDGE NO. 133	HUNTS CREEK. REPLACE BRIDGE NO. 151	RICH CREEK. REPLACE BRIDGE NO. 342	ABBOITS CREEK. REPLACE BRIDGE NO. 116	WINSTON-SALEM SOUTHBOUND RAILWAY. REPLACE BRIDGE NO. 94	HAMBY'S CREEK. REPLACE BRIDGE NO. 418	HIGH POINT, THOMASVILLE AND DENTON RAILROAD. REPLACE BRIDGE NO. 190	FLAT SWAMP CREEK. REPLACE BRIDGE NO. 225	WEST 71H AVENUE OVER WINSTON-SALEM SOLITHROLIND
HIGHWAY	ID NO.	8-2542	8-3163	8-3325	8-2822	8-2544	B-3326	8-2545	B-2129	8-2952	8-2546	8-2823	8-2547	B-836
	ROUTE/CITY	SR 1493	SR 1537	SR 1739	SR 1743	SR 1755	SR 1781	SR 1800	SR 1819	SR 1822	SR 2017	SR 2185	SR 2318	LEXINGTON

	HIGHV	HIGHWAY PROGRAM				DA/	DAVIDSON COUNTY	
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE	95 96 97 98 99 00	01
THOMASVILLE	B-2879	CARMALI STREET OVER NORTH HAMBY CREEK. REPLACE BRIDGE NO. 192		240	15	C(NFAM)	225 CONSTRUCTION - FFY 95	
AMTRAK	P-2932 A	TRACK AND SIGNAL IMPROVEMENTS		10181	2683	C(STP) C(NHS) C(S)	609 CONSTRUCTION - FFY 95 5382 CONSTRUCTION - FFY 95-96-97 1507 CONSTRUCTION - FFY 95-96-97 IN PROGRESS	
SR 1502 (CARVER RD)	W-2801	SR 1472 (DOC ZIMMERMAN RD) NEAR LEXINGTON. REALIGN AND TEE INTO SR 1502 TO ELIMINATE REVERSE CURVE AND ADVERSE SUPERELEVATION.	1.	02	10	C(HES)	60 CONSTRUCTION - FFY 96	
SR 1812	2-33608	NEAR WELCOME AT WINSTON-SALEM SOUTHBOUND RAILWAY CROSSING 836 388A. INSTALL AUTOMATIC WARNING DEVICES.		82	*	C(RR)	75 CONSTRUCTION - FFY 98	
SR 1821 HINKLE LANE	Z-2960C	NEAR WELCOME AT WINSTON-SALEM SOUTHBOUND RAILWAY CROSSING 836 380V. INSTALL AUTOMATIC WARNING DEVICES.		52	22	C(RR)	FUNDED - CONSTRUCTION NOT AUTHORIZED	12ED
SR 1825	Z-3360A	NEAR WELCOME AT WINSTON-SALEM SOUTHBOUND RAILWAY CROSSING 836 376F. INSTALL AUTOMATIC WARNING DEVICES.		52		C(RR)	75 CONSTRUCTION - FFY 98	
SR 2281	Z-3360F	NEAR LEXINGTON AT WINSTON-SALEM SOUTHBOUND RAILWAY CROSSING 849 847F. INSTALL AUTOMATIC WARNING DEVICES.	1.5	22		C(RR )	75 CONSTRUCTION - FFY 98	
THOMASVILLE	2-2760A	EAST SUNRISE AVENUE AT HPTD RAILROAD CROSSING 836 579K. INSTALL AUTOMATIC WARNING DEVICES.		51	51	C(RR)	UNDER CONSTRUCTION	
THOMASVILLE	Z-2960A	SR 1254 AT WINSTON-SALEM SOUTHBOUND RAILWAY CROSSING 849 859A. INSTALL AUTOMATIC WARNING DEVICES.		25		C(RR )	75 CONSTRUCTION - FFY 95	
THOMASVILLE	2-29608	CAROLINA AVENUE AT HIGH POINT THOMASVILLE & DENTON RAILROAD CROSSING 836 580E. INSTALL AUTOMATIC WARNING DEVICES.		22		C(RR)	75 CONSTRUCTION - FFY 96	
	* INDICAT	* INDICATES INTRASTATE PROJECT	Ā	LL SCHED	ULES SUB	JECT TO	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS	

	HIGH	HIGHWAY PROGRAM				DAVI	DAVIDSON COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH TOTAL PRIOR	TOTAL	PRIOR	WORK T	WORK TYPE 95 96 97 98 99 00 01
THOMASVILLE	2-31608	NC 109 (RANDOLPH STREET) AT HIGH POINT, THOMASVILLE & DENTON RAILROAD CROSSING 836 575H. REVISE AUTOMATIC WARNING DEVICES.		75	75	C(RR)	FUNDED - CONSTRUCTION NOT AUTHORIZED
THOMASVILLE	2-2960н	SR 2053, E. MAIN ST AT NORFOLK SOUTHERN RAILWAY CROSSING 715 262J. INSTALL AUTOMATIC WARNING DEVICES.	•	75		C(RR )	75 CONSTRUCTION - FFY 97
THOMASVILLE	2-29601	SR 2053, MAIN ST AT NORFOLK SOUTHERN RAILWAY CROSSING 715 261C. INSTALL AUTOMATIC WARNING DEVICES.		75		C(RR)	75 CONSTRUCTION - FFY 97
THOMASVILLE	Z-3360D	SR 2170 (MASON WAY) AT HIGH POINT, THOMASVILLE AND DENTON RAILROAD CROSSING 836 586V. INSTALL AUTOMATIC WARNING DEVICES.		75		C(RR )	75 CONSTRUCTION - FFY 98

HIGHWAY PROGRAM GUILFORD COUNTY	TOTAL PRIOR WORK TYPE SCHEDULE  (MI) COST COST EST. COST  (KM) (THOU) (THOU) (THOU) 95 96 97 98 99 00 01	1-2201 * NEW 1-40 EAST OF KERNERSVILLE TO WEST OF 10.5 87738 19542 D SR 1398 IN GREENSBORO. WIDEN ROADWAY TO 16.9 SIX AND EIGHT LANES. (INCLUDES I-2711) PART UNDER CONSTRUCTION	1-303 * WEST OF US 421 TO NC 54. WIDEN FOUR LANE 21.9 114308 114308 C(IR)  FREEWAY TO EIGHT LANES.  35.2  PART COMPLETE - UNDER CONSTRUCTION	1-1022 WEST OF NC 6 TO ALAMANCE COUNTY LINE. 12.0 180 C(IM ) 180 ——   19.3 19.3 19.3	1-2702 1-40/85 MERGE TO US 421 (EXIT 126), IN 2.3 2300 2300 C(IM ) 4— GREENSBORD. MILL, RESURACE, INSTALL 3.7 THERMOPLASTIC REFLECTIVE MARKERS AND REFLECTIVE MARKERS.	1-2402 * GREENSBORO BYPASS, 1-85 SOUTH TO 1-40/85 EAST 14.0 146695 3545 D  CONSTRUCT MULTI-LANE FREEWAY ON NEW LOCATION. 22.5 C(NHS)113500 C(NHS)113500	1-2723 RANDOLPH COUNTY LINE TO SR 1007 (EXIT 124). 11.8 180 C(IM ) 180 C(IM ) 180 CONSTRUCTION BY DIVISION	R-984 16TH STREET IN GREENSBORO TO ROCKINGHAM 10.9 12850 150 D COUNTY LINE. CONCRETE PAVEMENT AND BRIDGE 17.5 C(NHS) 12700	D R-2808 1-85 IN DAVIDSON COUNTY TO 1-85 IN GUILFORD 31.1 30100 P COUNTY. UPGRADE, SAFETY IMPROVEMENTS AND 50.1 R(STP) 100 REPLACE BRIDGE NO. 74 AT SR 1627 (8-2163). C(STP) 2000	
	ROUTE/CITY ID NO.		1-40/85 1-303 *	1-40/85 1-1022	1-40/85 1-2702		1-85 1-2723	US 29 R-984	US 29-70 AND R-2808 1-85 BUS.	* INDICATES INTRASTATE

	HIGHV	HIGHWAY PROGRAM				GUILFORD COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
US 70	R-2910	SR 3D56 IN GUILFORD COUNTY TO SR 1309 IN ALAMANCE COUNTY. WIDEN ROADWAY TO A FIVE LANE CURB AND GUTTER FACILITY.	6.8	8000		IDENTIFIED FUTURE NEED
us 158	R-2577 *	FOUR LANES NORTH OF 1-40 TO US 22D. WIDEN ROADWAY TO A MULTI-LANE FACILITY.	18.8	40550		IDENTIFIED FUTURE NEED
us 158	R-258D *	US 220 TO US 29. WIDEN ROADWAY TO A MULTI- LANE FACILITY.	21.8	05627		IDENTIFIED FUTURE NEED
us 220	R-2309	MULTI-LANES NORTH OF GREENSBORO TO NC 68 CONNECTOR. WIDEN ROADWAY TO MULTI-LANES.	7.2	14520	120	C(STP) 3500 C(STP) 100 POST YEAR CONSTRUCTION-9800
US 220-NC 68	R-2413 *	SR 2133 (PLEASANT RIDGE ROAD) TO US 220-NC 68 CONSTRUCT A MULTI-LANE CONNECTOR, ON NEW LOCATION FROM NC 68 TO US 220 AND MULTI-LANE US 220 TO NC 68.	12.4	81855	1000	R(T ) 10855 C(T ) 16800 POST YEAR ROW AND CONSTRUCTION-53200
US 311 BYPASS	R-609	HIGH POINT, "EAST BELT", US 311 SOUTH TO US 311 NORTH. FOUR LANE DIVIDED FACILITY ON NEW LOCATION.	14.3	136723	38298	C(NHS) 15425
us 421	R-952	WEST OF US 158 IN FORSYTH COUNTY TO WEST OF SR 185D IN GUILFORD COUNTY. PAVEMENT REHABILITATION.	8.5	11450	150	C(STP) 11300
US 421	R-2611	COLFAX TO NC 68. WIDEN ROADWAY TO A MULTI- LANE FACILITY.	5.8	7500		R(STP) 2900 POST YEAR CONSTRUCTION-4600
	* INDICAT	* INDICATES INTRASTATE PROJECT	4	ALL SCHED	ULES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

	HIGHV	HIGHWAY PROGRAM				GUILFORD COUNTY	COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95	96 97 98 99 00 01
us 421	R-2612	NC 22 AND SR 3389 (WOODY MILL ROAD) SOUTH OF GREENSBORO. CONVERT AT GRADE INTERSECTIONS TO INTERCHANGES.	•	7100		р В К(NHS) 500 С(NHS) 3600 POST YE	POST YEAR CONSTRUCTION-3000
GREENSBORO	* 09-n	US 220, VANDALIA ROAD NORTH OF 1-85 THRU 1-40 TO WILLOMORE STREET. MULTI-LANE FREEWAY ON NEW LOCATION.	1.8	37637	37637	C(T )	PART COMPLETE - UNDER CONSTRUCTION
GREENSBORO	U-608	BRYAN BOULEVARD EXTENSION, AIRPORT TO SR 2179 (NEW GARDEN ROAD). FOUR LANE FACILITY ON NEW LOCATION.	2.9	23605	19255	C(STP) 4350 ************************************	UNDER CONSTRUCTION
GREENSBORO	U-2012	NC 68 AND SR 2085. CONSTRUCT INTERCHANGE.	1.1	8332	3277	R(STP) 55	
GREENSBORO HIGH POINT	0-2412	SR 4121 (GREENSBORO-HIGH POINT ROAD), HILLTOP ROAD TO PROPOSED US 311 BYPASS. WIDEN ROADWAY TO MULTI-LANES AND CONSTRUCT • MULTI-LANES ON NEW LOCATION.	7.8	42850	200	C(STP) 23300 POST YE	POST YEAR ROW AND CONSTRUCTION-18300
GREENSBORO	u-2524 *	WESTERN LOOP, 1-85 SOUTH TO LAWNDALE DRIVE. FOUR LANE FREEWAY ON NEW LOCATION.	15.0	188850	4850	C(NHS) 19000 C(NHS) 5000 POST YE	POST YEAR ROW AND CONSTRUCTION-160000
GREENSBORO	U-2525 *	EASTERN LOOP, LAWNDALE DRIVE TO NORTH OF 1-40/85. FOUR LANE FREEWAY ON NEW LOCATION.	13.4	187250	700	R(T ) 6300 C(T ) 16250	POST YEAR ROW AND CONSTRUCTION-164000
	* INDICAT	* INDICATES INTRASTATE PROJECT	⋖	LL SCHED	ULES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS	ITY OF FUNDS

	HIGHV	HIGHWAY PROGRAM				GUILFORD COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
GREENSBORO	U-2581	US 70, SR 2851 (PENRY ROAD) TO SR 3056. WIDEN TO MULTI-LANES, WITH SOME RELOCATION.	6.9	11725	75	C(STP) 2300 C(STP) 1550 POST YEAR ROW AND CONSTRUCTION-7800
GREENSBORO	U-2815	SR 2085 (AIRPORT PARKUAY), SR 1695 (REGIONAL ROAD) TO SR 2137 (OAK RIDGE ROAD). CONSTRUCT ADDITIONAL LANES TO COORDINATE WITH BRYAN BOULEVARD.	3.1	3500		C(STP) 3400
GREENSBORO	U-2816	FLORIDA STREET, EXTEND FROM NC 6 TO US 70. CONSTRUCT A TWO LANE FACILITY ON NEW LOCATION.	2.9	9029		IDENTIFIED FUTURE NEED
GREENSBORO HIGH POINT	U-2913	SR 1546 (GUILFORD COLLEGE ROAD), SR 4121 TO 1-40. WIDEN ROADWAY TO A MULTI-LANE FACILITY.	4.9	10800		C(STP) 9300
GREENSBORO	U-2914	SR 2179 (NEW GARDEN ROAD), SR 2179 (FLEMING ROAD), TO BRASSFIELD ROAD. WIDEN ROADWAY TO A MULTI-LANE FACILITY.	3.4	4800		IDENTIFIED FUTURE NEED
GREENSBORO	U-3108	SR 1383 (WILEY DAVIS ROAD) RELOCATION, VICKREY CHAPEL ROAD IN VICINITY OF GRAYMOUNT DRIVE TO GROOMETOUN ROAD. CONSTRUCT A FOUR LANE DIVIDED FACILITY, PART ON NEW LOCATION.	2.6	8450	9200	C(S ) 2250 **********************************
GREENSBORO	U-3313	GROOMTOWN ROAD, CITY LIMITS TO 1-85. WIDEN ROADWAY TO MULTI-LANES.				SCHEDULED FOR FEASIBILITY STUDY
GREENSBORO	u-3314	1 40/85 CORRIDOR. IVHS STUDY TO INCLUDE VARIABLE MESSAGE SIGNS, TRAFFIC FLOW, INCIDENT MANAGEMENT SIGNS, COMMUNICATIONS SYSTEMS, COORPLINATED SIGNALS, TRAFFIC OPERATIONS CENTER AND VIDEO SURVEILLANCE.				SCHEDULED FOR FEASIBILITY STUDY
	* INDICA.	* INDICATES INTRASTATE PROJECT	A	LL SCHED	ULES SUE	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

	HIGHV	HIGHWAY PROGRAM				GUILFORD COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
HIGH POINT GREENSBORO	U-2413	SR 1541 (WENDOVER AVENUE), SR 1536 (PENNY ROAD) TO LANDMARK CENTER DRIVE IN GREENSBORO. WIDEN ROADWAY TO A MULTI-LANE FACILITY.	4.1	16528	16528	C(STP)  WINDER CONSTRUCTION
HIGH POINT	U-2536	INTERMEDIATE LOOP, US 311 (NORTH MAIN STREET) TO SR 1471 (MONTLEIU AVENUE). CONSTRUCT A MULTI-LANE FACILITY ON NEW LOCATION.	2.9	14600	1500	C(S ) 2300 **********************************
HIGH POINT	U-2537	WESTSIDE THOROUGHFARE, 1-85 AT SR 1547 (CUCUMBER ROAD) TO SR 1755 (LEXINGTON AVENUE) WIDEN ROADWAY TO A MULTI-LANE FACILITY.	7.6	31500		IDENTIFIED FUTURE NEED
HIGH POINT	U-2717	SR 1113 (KIVETT DRIVE), BRENTWOOD STREET TO US 29-70. WIDEN ROADWAY TO A MULTI-LANE CURB AND GUTTER FACILITY.	2.5	8125		IDENTIFIED FUTURE NEED - PART INCLUDED IN R-609F
HIGH POINT	U-2820	COMPUTERIZED SIGNAL SYSTEM.	1	4222	350	C(CM ) 1936
HIGH POINT RANDLEMAN	U-3319	RANDLEMAN LAKE DAM BRIDGES. EVALUATION OF RESERVOIR IMPACT ON STRUCTURES IN AREA.				SCHEDULED FOR FEASIBILITY STUDY
HIGH POINT	U-3320	SR 4121 (HIGH POINT ROAD) AND VEASLEY STREET. REALIGN AND WIDEN VEASLEY ROAD APPROACHES TO IMPROVE INTERSECTION OPERATION.	•			SCHEDULED FOR FEASIBILITY STUDY
1-40 AND 1-85	C-3101	PROVIDE VARIABLE MATRIX SIGNS TO REDUCE CONGESTION AND CONSEQUENTIAL AIR POLLUTION.	,	2000	2000	C(CM ) UNDER CONSTRUCTION
US 29 SR 2510	8-3090	US 29, REHABILITATE BRIDGE NO. 361 AND REPLACE BRIDGE NO. 362 OVER REEDY FORK CREEK. REHABILITATE BRIDGE NO. 368 AND REPLACE BRIDGE NO. 355 OVER NC 150. SR 2510. REPLACE BRIDGE NO. 371 OVER US 29. (COORDINATE WITH R-984)	7	3100		C(NFA) 2500 CONSTRUCTION - FFY 99 C(NFA) 600 CONSTRUCTION - FFY 99
	* INDICAT	* INDICATES INTRASTATE PROJECT	⋖	LL SCHED	ULES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

	HIGH/	HIGHWAY PROGRAM				GN	GUILFORD COUNTY
30UTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE	TYPE 95 96 97 98 99 00 01
US 29-70-220 AND US 421	B-3174	NC 6 (EAST LEE ST.). REPLACE BRIDGE NO. 306	•	1320		R(FA ) C(FA )	120 RIGHT OF WAY - FFY 00 1200 CONSTRUCTION - FFY 01
US 311	B-2831	NORFOLK SOUTHERN CORPORATION. REPLACE BRIDGE NO. 19	•	822	122	C(FA )	700 CONSTRUCTION - FFY 95
sR 1001	B-3337	NORTH BUFFALO CREEK. REPLACE BRIDGE NO. 527		770		R(FA ) C(FA )	70 RIGHT OF WAY - FFY 00 700 CONSTRUCTION - FFY 01
sr 1005	B-2977	SOUTH STINKING QUARTER CREEK. REPLACE BRIDGE NO. 255		355		R(FA ) C(FA )	30 RIGHT OF WAY - FFY 97 325 CONSTRUCTION - FFY 98
SR 1193	B-2978	US 29-70/1-85 BUS. REPLACE BRIDGE NO. 196		067		R(FA ) C(FA )	40 RIGHT OF WAY - FFY 98 450 CONSTRUCTION - FFY 99
SR 1556	B-2833	EAST PRONG DEEP RIVER. REPLACE BRIDGE NO. 78	•	310		R(FA ) C(FA )	50 RIGHT OF WAY - FFY 96 260 CONSTRUCTION - FFY 97
SR 1695	B-3175	US 421 AND SOUTHERN RAILROAD. REPLACE BRIDGE NO. 74		066		R(NFA) C(NFA)	90 RIGHT OF WAY - FFY 96 900 CONSTRUCTION - FFY 97
SR 2007	B-3176	REEDY FORK CREEK. REPLACE BRIDGE NO. 88		358		R(NFA) C(NFA)	33 RIGHT OF WAY - FFY 99 325 CONSTRUCTION - FFY 00
SR 2133	B-3177	MOORES CREEK. REPLACE BRIDGE NO. 119		550		R(NFA) C(NFA)	50 RIGHT OF WAY - FFY 00 500 CONSTRUCTION - FFY 01
SR 2147	B-3178	SR 2218. DECK REPLACEMENT BRIDGE NO. 465		200		C(FA)	500 CONSTRUCTION - FFY 00
SR 2182	B-2834	HORSEPEN CREEK. REPLACE BRIDGE NO. 101		387		R(FA ) C(FA )	52 RIGHT OF WAY - FFY 97 335 CONSTRUCTION - FFY 98
SR 2190	B-2139	LAKE HIGGINS. REPLACE BRIDGE NO. 118		267	465	C(NFA)	UNDER CONSTRUCTION
SR 2526	в-3179	REEDY FORK CREEK. DECK REHABILITATION OF BRIDGE NO. 459		300		C(NFA)	300 CONSTRUCTION - FFY 01
	* INDICA	* INDICATES INTRASTATE PROJECT	A	LL SCHED	ULES SUB	JECT TO	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

	HIGHV	HIGHWAY PROGRAM				GUILFORD COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
SR 3073	B-2835	LITTLE ALAMANCE CREEK. REPLACE BRIOGE NO. 213		348		R(NFA) 38 RIGHT OF WAY - FFY 97 C(NFA) 310 CONSTRUCTION - FFY 98
GREENSBORO	8-2877	BESSEMER AVENUE OVER SOUTHERN RAILROAD. REPLACE BRIOGE NO. 580		1000	100	C(NFAM) 900 CONSTRUCTION - FFY 95
GREENSBORO	B-2883	MERRITT ORIVE OVER NC 6 (PATTERSON STREET). REPLACE BRIDGE NO. 42		1000	1000	C(FA ) UNDER CONSTRUCTION BY CITY OF GREENSBORO
GREENSBORO	B-3272	MCCONNELL STREET. REPLACE BRIDGE NO. 318 OVER US 29-70-220-421		715		R(NFA) 65 RIGHT OF WAY - FFY 00 C(NFA) 650 CONSTRUCTION - FFY 01
HIGH POINT	B-2565	BRENTWOOD STREET. REPLACE BRIDGE NO. 170 OVER US 29-70/1-85 BUSINESS		762		R(FA ) 262 RIGHT OF WAY - FFY 97 C(FA ) 500 CONSTRUCTION - FFY 98
HIGH POINT	в-2800	CENTENNIAL STREET OVER SOUTHERN RAILROAD. REPLACE BRIOGE NO. 388		1350	1350	C(HFAM) UNDER CONSTRUCTION
AMTRAK	P-2908 A	TRAIN 79/80 OPERATIONS.		7650	2164	C(S ) 2756 OPERATIONS - FFY 95-96-97-98 IN PROGRESS
AMTRAK	P-2918	TRAIN 2 OPERATIONS.		9200	400	C(S ) 8800 OPERATIONS - FFY 95-96-97-98 IN PROGRESS
AMTRAK	P-2919	REFURBISH FIVE (5) RAIL CARS.	•	3144	5694	C(S ) 450 CONSTRUCTION - FFY 95 FOUR CARS COMPLETE
AMTRAK	P-2932 A	TRACK AND SIGNAL IMPROVEMENTS.		10181	2683	C(STP) 609 CONSTRUCTION - FFY 95 C(MHS) 5382 CONSTRUCTION - FFY 95-96-97 C(S ) 1507 CONSTRUCTION - FFY 95-96-97 IN PROGRESS
HIGH POINT	P-2912	STATION IMPROVEMENTS.		1770	270	CCSTP) 1200 CONSTRUCTION - FFY 95 C(S ) 150 CONSTRUCTION - FFY 95 C(C ) 150 CONSTRUCTION - FFY 95
NOR FOLK SOUTHERN	P-2935	CHARLOTTE TO RALEIGH, RAIL CROSSING INVENTORY		200	200	C(HSR) IN PROGRESS
	* INDICAT	* INDICATES INTRASTATE PROJECT	Αl	т ѕснер	JLES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

	HIGHWAY	VAY PROGRAM				GUILFORD COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
NC 68	W-2947	SR 1536 (PENNY ROAD) TO SR 2133. CONSTRUCT LEFT TURN LANES AT EXISTING MEDIAN OPENINGS.	6.9	120		C(HES) 120 CONSTRUCTION - FFY 98
sr 1550	Y-2949P	NEAR JAMESTOWN AT NORFOLK SOUTHERN RAILUAY CROSSING 722 357J. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.	•	75		C(RR ) 75 CONSTRUCTION - FFY 95
SR 2724	۲-2949	NEAR GIBSONVILLE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 984H. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		82	82	C(RR ) UNDER CONSTRUCTION
SR 2746 RANDHURST ROAD	Y-29490	NEAR MCLEANSVILLE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 975J. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		75		C(RR ) 75 CONSTRUCTION - FFY 95
SR 2755	Y-2949A	NEAR MCLEANSVILLE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 978E. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		80	80	C(RR ) UNDER CONSTRUCTION
SR 2763	Y-2949K	NEAR GIBSONVILLE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 986J. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		81	. 81	C(RR ) UNDER CONSTRUCTION
SR 2764 BELL ROAD	Y-2949L	NEAR GIBSONVILLE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 983B. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.	•	75		C(RR ) 75 CONSTRUCTION - FFY 95
SR 2800 COLONY ROAD	Y-2949M	NEAR GIBSONVILLE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 981M. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		75		C(RR ) 75 CONSTRUCTION - FFY 95
SR 2801 CULLEN ROAD	Y-2949N	NEAR GIBSONVILLE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 982J. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.	•	75	25	C(RR ) FUNDED - CONSTRUCTION NOT AUTHORIZED
GIBSONVILLE	Y-29498	SR 2748 (SPRINGWOOD STREET) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 99DL. REVISE AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		85	85	C(RR ) UNDER CONSTRUCTION
	* INDICA	* INDICATES INTRASTATE PROJECT	A	LL SCHED	ULES SUE	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

	HIGHV	HIGHWAY PROGRAM				GUILFORD COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
GIBSONVILLE	Y-2949C	SR 286D (SMITH STREET) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 989S. REVISE AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.	•	75		C(RR ) 75 CONSTRUCTION - FFY 96
GREENSBORO	Y-29490	O'FERRELL ROAD AT NORFOLK SOUTHERN RAILWAY CROSSING 722 9618. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.	•	78	84	C(RR ) UNDER CONSTRUCTION
GREENSBORO	Y-2949E	SR 3006 (FRANKLIN BLVD.) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 959A. REVISE AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		72	22	C(RR ) UNDER CONSTRUCTION
GREENSBORO	Y-2949F	SR 3040 AT NORFOLK SOUTHERN RAILWAY CROSSING 722 966K. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.	•	75		C(RR ) 75 CONSTRUCTION - FFY 95
GREENSBORO	Y-3149A	SR 3025 (MAXFIELD ROAD) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 964W. INSTALL AUTOMATIC WARNING DEVICES.		75		C(RR ) 75 CONSTRUCTION - FFY 95
HIGH POINT	Y-3149B	PUMP STATION ROAD AT NORFOLK SOUTHERN RAILWAY CROSSING 722 353G. INSTALL AUTOMATIC WARNING DEVICES.		75		C(RR ) 75 CONSTRUCTION - FFY 95
MCLEANSVILLE	Y-2949G	SR 2819 (MCLEANSVILLE ROAD) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 976R. REVISË AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.		80	80	C(RR ) UNDER CONSTRUCTION
SR 3088	2-33498	NEAR JULIAN AT NORFOLK SOUTHERN RAILWAY CROSSING 720 940B. INSTALL AUTOMATIC WARNING DEVICES.	•	25		C(RR ) 75 CONSTRUCTION - FFY 98
SR 3430	2-33496	NEAR GREENSBORO AT NORFOLK SOUTHERN RAILWAY CROSSING 722 179A. INSTALL AUTOMATIC WARNING DEVICES.	ř	75		C(RR ) 75 CONSTRUCTION - FFY 96
SR 3433 DAVIE STREET	Z-2949F	NEAR GREENSBORO AT NORFOLK SOUTHERN RAILWAY CROSSING 722 1781. INSTALL AUTOMATIC WARNING DEVICES.	t	25		C(RR ) 75 CONSTRUCTION - FFY 96
	* INDICAT	* INDICATES INTRASTATE PROJECT	A	LL SCHED	ULES SUE	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

	HIGH	HIGHWAY PROGRAM				GUILFORD COUNTY	YTN00:
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96	6 97 98 99 00 01
SR 3437	1-3349н	NEAR PLEASANT GROVE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 184W. INSTALL AUTOMATIC WARNING DEVICES.	·	25		C(RR ) 75 CONSTRUCTION	TION - FFY 98
GIBSONVILLE	2-27490	EAST JOYNER STREET AT NORFOLK SOUTHERN RAILWAY CROSSING 722 987D. INSTALL AUTOMATIC WARNING DEVICES.		59	59	C(RR ) UNDER CON	UNDER CONSTRUCTION
GREENSBORO	Z-2749C	EAST BESSEMER STREET AT NORFOLK SOUTHERN RAILWAY CROSSING 713 719U. INSTALL AUTOMATIC WARNING DEVICES.	•	77	22	C(RR ) FUNDED -	FUNDED - CONSTRUCTION NOT AUTHORIZED
GREENSBORO	2-28498	RUCKER STREET AT NORFOLK SOUTHERN RAILWAY CROSSING 722 365B. INSTALL AUTOMATIC WARNING DEVICES.	•	86	86	C(RR ) UNDER CON	UNDER CONSTRUCTION
GREENSBORO	2-28490	RAIL STREET AT NORFOLK SOUTHERN RAILWAY CROSSING 722 364U. INSTALL AUTOMATIC WARNING DEVICES.		18	81	C(RR ) UNDER CON	UNDER CONSTRUCTION
GREENSBORO	2-28490	(ALOE ROAD) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 124M. INSTALL AUTOMATIC WARNING DEVICES.		99	99	C(RR ) UNDER CON	UNDER CONSTRUCTION
GREENSBORO	Z-2949A	SR 1563 (SWING ROAD) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 123F. REVISE AUTOMATIC WARNING DEVICES.		110	110	C(S ) UNDER CON	UNDER CONSTRUCTION
GREENSBORO	Z-3349A	SR 3163 (E. MARKET ST) AT NORFOLK SOUTHERN RAILWAY CROSSING 713 711P. REVISE AUTOMATIC WARNING DEVICES.	r 3.	75		C(RR ) 75 CONSTRUCTION	710N - FFY 97
GREENSBORO	2-33490	WESTOVER STREET AT NORFOLK SOUTHERN RAILWAY CROSSING 721 140T. REVISE AUTOMATIC WARNING DEVICES.	•	25		C(RR ) 75 CONSTRUCTION	TION - FFY 97
GREENSBORO	2-33490	EDWARDIA ST AT NORFOLK SOUTHERN RAILWAY CROSSING 722 128P. REVISE AUTOMATIC WARNING DEVICES.	•	75		C(RR ) 75 CONSTRUCTION	TION - FFY 98
	* INDICA	* INDICATES INTRASTATE PROJECT	A	LL SCHED	ULES SUE	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS	r of Funds

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	HIGHV	HIGHWAY PROGRAM				GUI	GUILFORD COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH TOTAL	TOTAL	PRIOR	WORK TYPE	YPE 95 96 97 98 99 00 01
GREENSBORO	2-3349E	FLORIDA ST AT NORFOLK SOUTHERN RAILWAY CROSSING 722 165S. REVISE AUTOMATIC WARNING DEVICES.		75	-	C(RR )	75 CONSTRUCTION - FFY 97
GREENSBORO	Z-3349F	SR 3303 (VANDALIA STREET) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 169U. INSTALL AUTOMATIC WARNING DEVICES.		75		C(RR )	75 CONSTRUCTION - FFY 97
HIGH POINT	2-5949C	SR 1300 (WEST FAIRFIELD STREET) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 382S. INSTALL AUTOMATIC WARNING DEVICES.		106	106	C(RR )	UNDER CONSTRUCTION
HIGH POINT	2-29490	TRYON STREET AT NORFOLK SOUTHERN RAILWAY CROSSING 713 776H. INSTALL AUTOMATIC WARNING DEVICES.	•	75		C(RR )	75 CONSTRUCTION - FFY 96
HIGH POINT	2-33491	SR 1702 AT HIGH POINT, THOMASVILLE AND DENTON RAILROAD CROSSING 836 545R. REVISE AUTOMATIC WARNING DEVICES.	•	75		C(RR )	75 CONSTRUCTION - FFY 98
HIGH POINT	2-3349J	CLINTON AVENUE AT HIGH POINT, THOMASVILLE AND DENTON RAILROAD CROSSING 836 635P. INSTALL AUTOMATIC WARNING DEVICES.		75		C(RR)	75 CONSTRUCTION - FFY 98

	HIGHV	HIGHWAY PROGRAM				RANDOLPH COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH (MI) (KM)	TOTAL EST. COST (THOU)	PRIOR YEARS COST (THOU)	WORK TYPE SCHEDULE (FUNDING) FEDERAL FISCAL YEAR EST. COST (THOU) 95 96 97 98 99 00 01
US 29-70 AND 1-85 BUS.	R-2808	I-85 IN DAVIDSON COUNTY TO 1-85 IN GUILFORD COUNTY. UPGRADE, SAFETY IMPROVEMENTS AND REPLACE BRIDGE NO. 74 AT SR 1627 (8-2163).	31.1	3010b		C(STP) 100 C(STP) 2000 POST YEAR CONSTRUCTION-280D0
NC 49	R-2535	MULTI-LANES WEST OF FARMER TO THE PROPOSED ASHEBORO SOUTHERN LOOP. WIDEN ROADWAY TO A FOUR LANE DIVIDED FACILITY.	9.7	15030	30	IDENTIFIED FUTURE NEED
NS 64	R-2217 *	NC 22 IN RAMSEUR TO EXISTING FIVE LANES IN SILER CITY. WIDEN ROADWAY TO FOUR LANES WITH FIVE LANES IN RAMSEUR AND REPLACE BRIDGE NO. 11 IN SILER CITY.	16.9	248D0	200	C(T ) 1850D
NS 64	R-2220 *	EAST OF 1-85 BUSINESS IN LEXINGTON TO US 220 IN ASHEBORO. WIDEN ROADWAY TO FOUR LANES.	28.5 45.9	55680	006	POST YEAR ROW AND CONSTRUCTION-49930 CONSTRUCTION OF INITIAL SECTION BY DIVISION
ns 64	R-2536	ASHEBORO SOUTHERN BYPASS, US 64 WEST TO US 64 EAST. FOUR LANE RREEMAY ON NEW LOCATION WITH INTERCHANGES AT US 220, NC 49 AND 200 ACCESS AT NC 159.	13.5	107600		IDENTIFIED FUTURE NEED
us 220	R-523 *	SOUTH OF STEEDS TO SOUTH OF ULAH. FOUR LANE DIVIDED FACILITY ON NEW LOCATION.	13.D 20.9	43030	43030	C(NHS) ************************************
US 311	R-2606	HIGH POINT, "EAST BELT" TO US 220. MULTI-LANE FACILITY ON NEW LOCATION.	6.5	26535		R(NHS) 6635 POST YEAR CONSTRUCTION-19900
	* INDICAT	* INDICATES INTRASTATE PROJECT	đ	IL SCHED	ULES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

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RANDOLPH COUNTY	WORK TYPE 95 96 97 98 99 00 01	R(NHS) 15425   C(NHS) 83000   PART UNDER CONSTRUCTION   R-609F INCLUDES U-2717A	C(NHS) ************************************	IDENTIFIED FUTURE NEED	C(S )	P R(STP) 1400 C(STP) 1800	IDENTIFIED FUTURE NEED	C(SIP) 3950	SCHEDULED FOR FEASIBILITY STUDY	C(POC) 175 CONSTRUCTION - FFY 96	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS
	PRIOR	38298	47107		5237	150		200			ULES SUB.
	TOTAL	136723	20125	029	5237	3350	31500	0009		175	IL SCHEDI
	LENGTH	14.3 23.0	13.1	•	3.4	2.1	7.6	2.7	,	•	٩
HIGHWAY PROGRAM	LOCATION AND DESCRIPTION	High Point, "East Belt", us 311 south to Us 311 north. Four Lane Divided Facility On New Location.	SILER CITY BYPASS, SILER CITY TO STALEY. CONSTRUCT TWO LANES TO COMPLETE FOUR LANE DIVIDED FACILITY AND CONSTRUCT INTERCHANGE SOUTH OF SILER CITY.	SR 1592 (EDEN TERRACE) AND SR 1595 (SURRETT DRIVE). IMPROVE INTERSECTION.	PRESNELL STREET EXTENSION, FARR STREET TO US 64-NC 49. MULTI-LANE CURB AND GUTTER FACILITY ON NEW LOCATION.	US 220 BUSINESS, PRITCHARD STREET TO SR 2261 (OLD LIBERTY ROAD). WIDEN ROADWAY TO A FIVE LANE CURB AND GUTTER FACILITY.	WESTSIDE THOROUGHFARE, 1-85 AT SR 1547 (CUCUMBER ROAD) TO SR 1755 (LEXINGTON AVENUE) WIDEN ROADWAY TO A MULTI-LANE FACILITY.	US 311, 1-85 TO PROPOSED "EAST BELT" WEST OF SR 1919. WIDEN ROADWAY TO A FIVE LANE FACILITY.	RANDLEMAN LAKE DAM BRIDGES. EVALUATION OF RESERVOIR IMPACT ON STRUCTURES IN AREA.	MILL CREEK. REPLACE BRIDGE NO. 181	* INDICATES INTRASTATE PROJECT
HIGHV	ID NO.	R-609	R-68 *	U-2702	U-1558 N	u-2200	U-2537	U-2538	U-3319	B-2162	* INDICAT
	ROUTE/CITY	US 311 BYPASS	US 421	ARCHDALE HIGH POINT	ASHEBORO	ASHEBORO	HIGH POINT	HIGH POINT	HIGH POINT RANDLEMAN	SR 1003	

	HIGHV	HIGHWAY PROGRAM				RANDOLPH COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
SR 1127	в-3222	REED CREEK. REPLACE BRIDGE NO. 7		303		R(NFA) 28 RIGHT OF WAY - FFY 00 C(NFA) 275 CONSTRUCTION - FFY 01
SR 1142	B-3363	LITTLE RIVER. REPLACE BRIDGE NO. 6		325		R(NFA) 25 RIGHT OF WAY - FFY 00 C(NFA) 300 CONSTRUCTION - FFY 01
SR 1314	B-3364	UWHARRIE RIVER. REPLACE BRIDGE NO. 42		920		R(NFA) 50 RIGHT OF WAY - FFY 00 C(NFA) 600 CONSTRUCTION - FFY 01
SR 1318	в-3020	BACK CREEK. REPLACE BRIDGE NO. 36		270		R(NFA) 20 RIGHT OF WAY - FFY 98 C(NFA) 250 CONSTRUCTION - FFY 99
SR 1327	B-3223	BARK CREEK. REPLACE BRIDGE NO. 48	•	200		C(POC) 200 CONSTRUCTION - FFY 00
SR 1404	B-3021	LITTLE UWHARRIE RIVER. REPLACE BRIDGE NO. 59		700		R(NFA) 30 RIGHT OF WAY - FFY 97 C(NFA) 370 CONSTRUCTION - FFY 98
SR 1406	B-3022	UWHARRIE RIVER. REPLACE BRIDGE NO. 52		515		R(NFA) 40 RIGHT OF WAY - FFY 98 C(NFA) 475 CONSTRUCTION - FFY 99
sR 1420	В-3224	BACK CREEK. REPLACE BRIDGE NO. 47	•	275		R(NFA) 25 RIGHT OF WAY - FFY 99 C(NFA) 250 CONSTRUCTION - FFY 00
SR 1549	B-2065	UWHARRIE RIVER. REPLACE BRIDGE NO. 63		510	510	C(NFA) UNDER CONSTRUCTION
SR 1619	B-2856	US 29-70/1-85 BUSINESS LOOP. REPLACE BRIDGE NO. 136		820		R(FA ) 100 RIGHT OF WAY - FFY 97 C(FA ) 720 CONSTRUCTION - FFY 98
SR 1627	B-2163	US 29-70/1-85 BUSINESS LOOP. REPLACE BRIDGE NO. 74		006		R(FA ) 100 RIGHT OF WAY - FFY 00 C(FA ) 800 CONSTRUCTION - FFY 01
SR 1917	B-2066	MUDDY CREEK. REPLACE BRIDGE NO. 88		211	211	C(POC) UNDER CONSTRUCTION
SR 1928	B-2857	MUDDY CREEK. REPLACE BRIDGE NO. 90	•	405		R(NFA) 55 RIGHT OF WAY - FFY 96 C(NFA) 350 CONSTRUCTION - FFY 97
SR 2101	B-3023	POLECAT CREEK. REPLACE BRIDGE NO. 104		355		R(NFA) 30 RIGHT OF WAY - FFY 98 C(NFA) 325 CONSTRUCTION - FFY 99
	* INDICA	* INDICATES INTRASTATE PROJECT	AL	L SCHED	ULES SUB	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

\* INDICATES INTRASTATE PROJECT

	HIGHV	HIGHWAY PROGRAM				RANDOLPH COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
SR 2113	B-3024	POLECAT CREEK. REPLACE BRIDGE NO. 109		355		R(NFA) 30 RIGHT OF WAY - FFY 98 C(NFA) 325 CONSTRUCTION - FFY 99
SR 2134	8-3225	POLECAT CREEK. REPLACE BRIDGE NO. 123		077		R(NFA) 40 RIGHT OF WAY - FFY 99 C(NFA) 400 CONSTRUCTION - FFY 00 .
SR 2142	8-3025	BUSH CREEK. REPLACE BRIDGE NO. 148		220		R(NFA) 20 RIGHT OF WAY - FFY 97 C(NFA) 200 CONSTRUCTION - FFY 98
SR 2830	B-2858	RICHLAND CREEK. REPLACE BRIDGE NO. 404	ı	400		R(NFA) 15 RIGHT OF WAY - FFY 96 C(NFA) 385 CONSTRUCTION - FFY 97
SR 2911	8-2859	RICHLAND CREEK. REPLACE BRIDGE NO. 359		282		R(NFA) 52 RIGHT OF WAY - FFY 97 C(NFA) 230 CONSTRUCTION - FFY 98
us 311	W-2810	NORTH OF SR 1571 TO SOUTH OF SR 1747. WIDEN TO PROVIDE TWO-WAY LEFT TURN LANE.	0.3	354	354	C(HES) UNDER CONSTRUCTION
ASHEBORO	W-2809	US 220 BUS (FAYETTEVILLE ST) AND NC 42 (SALISBURY ST). WIDEN NORTH APPROACH TO PROVIDE LEFT TURN LANE AND REVISE TRAFFIC SIGNAL.	0.1	213	213	C(HES) UNDER CONSTRUCTION
NC 311	2-33576	NEAR RANDLEMAN AT NORFOLK SOUTHERN RAILWAY CROSSING 722 463S. INSTALL AUTOMATIC WARNING DEVICES.		22		C(RR ) 75 CONSTRUCTION - FFY 97
SR 1571	z-2957c	NEAR ARCHDALE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 417R. INSTALL AUTOMATIC WARNING DEVICES.		52		C(RR ) 75 CONSTRUCTION - FFY 96
SR 1621	2-29570	NEAR ARCHDALE AT HIGH POINT, THOMASVILLE & DENTON RAILROAD CROSSING 836 539M. INSTALL AUTOMATIC WARNING DEVICES.		22		C(RR ) 75 CONSTRUCTION - FFY 96
sr 1630	2-31578	NEAR RANDLEMAN AT NORFOLK SOUTHERN RAILWAY CROSSING 722 464Y. INSTALL AUTOMATIC WARNING DEVICES.	•	66	66	C(RR ) UNDER CONSTRUCTION

	HIGHV	HIGHWAY PROGRAM				RANDOLPH COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
SR 2405	Z-3357A	NEAR LIBERTY AT NORFOLK SOUTHERN RAILWAY CROSSING 720 942P. INSTALL AUTOMATIC WARNING DEVICES.		22		C(RR ) 75 CONSTRUCTION - FFY 97
ARCHDALE	Z-2857A	SR 1592 (EDEN TERRACE) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 384F. INSTALL AUTOMATIC WARNING DEVICES.	•	78	78	C(RR ) FUNDED - CONSTRUCTION NOT AUTHORIZED
ARCHDALE	2-29578	SR 1638 (ARCHDALE ROAD) AT NORFOLK SOUTHERN RAILWAY CROSSING 722 389P. INSTALL AUTOMATIC WARNING DEVICES.		25		C(RR ) 75 CONSTRUCTION - FFY 95
ARCHDALE	2-33578	SR 1674 (HILL STREET) AT CAROLINA AND NORTHWESTERN RAILROAD CROSSING 722 407K. INSTALL AUTOMATIC WARNING DEVICES.	•	75		C(RR ) 75 CONSTRUCTION - FFY 98
ARCHDALE	2-33570	SR 1570 AT CAROLINA AND NORTHWESTERN RAILROAD CROSSING 722 409Y. INSTALL AUTOMATIC WARNING DEVICES.	•	75		C(RR ) 75 CONSTRUCTION - FFY 97
ASHEBORO	Z-2957A	SUNSET AVENUE AT NORFOLK SOUTHRN RAILWAY CROSSING 722 48BM. INSTALL AUTOMATIC WARNING DEVICES.	•	55		C(RR ) 75 CONSTRUCTION - FFY 95
ASHEBORO	2-33570	SUMMIT AVENUE AT CAROLINA AND NORTHWESTERN RAILROAD CROSSING 722 480H. INSTALL AUTOMATIC WARNING DEVICES.		55		C(RR ) 75 CONSTRUCTION - FFY 98
ASHEBORO	2-3357E	SR 1191 AT CAROLINA AND NORTHWESTERN RAILROAD CROSSING 722 505B. INSTALL AUTOMATIC WARNING DEVICES.	•	27		C(RR ) 75 CONSTRUCTION - FFY 98
ASHEBORO	Z-3357F	W. KIVETT ST AT NORFOLK SOUTHERN RAILWAY CROSSING 722 491V. INSTALL AUTOMATIC WARNING DEVICES.		25		C(RR ) 75 CONSTRUCTION - FFY 97
ASHEBORO	2-3357н	SR 1150 AT NORFOLK SOUTHERN RAILWAY CROSSING 722 506H. INSTALL AUTOMATIC WARNING DEVICES.	•	75		C(RR ) 75 CONSTRUCTION - FFY 97
LIBERTY	Z-3157A	SR 2261 AT NORFOLK SOUTHERN RAILWAY CROSSING 720 971A. REVISE AUTOMATIC WARNING DEVICES.		22		C(RR ) 75 CONSTRUCTION - FFY 96
	* INDICAT	* INDICATES INTRASTATE PROJECT	A	LL SCHED	ULES SUB.	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

ROCKINGHAM COUNTY	S (FUNDING) FEDERAL FISCAL YEAR EST. COST FEDERAL FISCAL YEAR (THOU) 95 96 97 98 99 00 01	C(STP) 4075 C(STP) 8200 POST YEAR ROW AND CONSTRUCTION-35045	R(S ) 5360 (C(S ) 5360	IDENTIFIED FUTURE NEED	POST YEAR ROW AND CONSTRUCTION-43100	C(1 ) 18500 * C(2 ) 6.75 PART UNDER CONSTRUCTION	C(T ) 16800 POST YEAR ROW AND CONSTRUCTION-53200	IDENTIFIED FUTURE NEED	C(S ) 3400 *	ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS
	AL PRIOR F. YEARS ST COST OU) (THOU)	80	8020 2660	20	00	75 10800	55 1000	60 30	50 8550	CHEDULES S
	TOTAL H EST. COST (THOU)	47400	80	05625	43100	29975	81855	48460	11950	ALL SC
	LENGTH (MI) (KM)	30.7	10.7	21.8	21.0	13.3	12.4	24.0 38.6	3.9	
VAY PROGRAM	LOCATION AND DESCRIPTION	SR 1547 IN ALAMANCE COUNTY TO US 29 IN REIDSVILLE. WIDEN ROADWAY TO A FOUR LANE DIVIDED FACILITY.	EAST CITY LIMITS OF MAYODAN TO SR 2221 WEST OF EDEN. RESURFACING, SAFETY IMPROVEMENTS AND PARTIAL WIDENING.	US 220 TO US 29. WIDEN ROADWAY TO A MULTI- LANE FACILITY.	US 29 TO NC 62. WIDEN ROADWAY TO A MULTI- LANE FACILITY.	SOUTH OF US 220-NC 704 INTERCHANGE TO THE VIRGINIA STATE LINE. WIDEN ROADWAY TO A FOUR LANE FACILITY.	SR 2133 (PLEASANT RIDGE ROAD) TO US 220-NC 68 CONSTRUCT A MULTI-LANE CONNECTOR, ON NEW LOCATION FROM NC 68 TO US 220 AND MULTI-LANE US 220 TO NC 68.	US 220 AT MADISON TO WALKERTOWN. UPGRADE EXISTING FACILITY.	SOUTHERN LOOP, US 29 BUSINESS TO NC 87. CONSTRUCT FIVE LANE CURB AND GUTTER FACILITY ON NEW LOCATION.	* INDICATES INTRASTATE PROJECT
HIGHWAY	ID NO.	R-2560	R-1033	R-2580 *	R-2586 *	R-2232 *	R-2413 *	R-2313	U-2418	* INDICAT
	ROUTE/CITY	NC 87	NC 135	US 158	US 158	US 220	US 220-NC 68	US 311	REIDSVILLE	

ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

\* INDICATES INTRASTATE PROJECT

	HIGH	HIGHWAY PROGRAM			Œ	ROCKINGHAM COUNTY
ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH	TOTAL	PRIOR	WORK TYPE 95 96 97 98 99 00 01
REIDSVILLE	U-3326	US 29 BUSINESS (FREEWAY DRIVE), SOUTHERN LOOP TO NC 14. WIDEN ROADWAY TO MULTI-LANES.				SCHEDULED FOR FEASIBILITY STUDY
WENTWORTH	u-2560	NC 65-87 INTERSECTION. UPGRADE INTERSECTION AND EXTEND WIDENING OF NC 65-87 WEST OF SR 2467 (0.4 MILES) AT ELEMENTARY SCHOOL.	1.1	2550	1425	C(STP) 25 *
NC 14	B-2611	DAN RIVER. REPLACE BRIDGE NO. 132	,	3488	3488	C(NHS) UNDER CONSTRUCTION
NC 87	B-3368	DAN RIVER. REPLACE BRIDGE NO. 45		2100		R(FA ) 100 RIGHT OF WAY - FFY 00 C(FA ) 2000 CONSTRUCTION - FFY 01
US 220 BUSINESS B-3230	ss B-3230	MAYO RIVER. REPLACE BRIDGE NO. 64	•	880		R(FA ) 80 RIGHT OF WAY - FFY 99 C(FA ) 800 CONSTRUCTION - FFY 00
SR 1378	B-3231	NORTHERN AND WESTERN RAILROAD. REPLACE BRIDGE NO. 243	•	523		R(FA ) 48 RIGHT OF WAY - FFY 99 C(FA ) 475 CONSTRUCTION - FFY 00
SR 2037	B-3232	MOLF ISLAND CREEK. REPLACE BRIDGE NO. 255 $^{\prime\prime}$	•	385		R(NFA) 35 RIGHT OF WAY - FFY 99 C(NFA) 350 CONSTRUCTION - FFY 00
SR 2145	B-3038	DAN RIVER. REPLACE BRIDGE NO. 119		1100		R(NFA) 100 RIGHT OF WAY - FFY 98 C(NFA) 1000 CONSTRUCTION - FFY 99
SR 2351	B-3369	TROUBLESOME CREEK. REPLACE BRIDGE NO. 16		250		R(NFA) 20 RIGHT OF WAY - FFY 00 C(NFA) 230 CONSTRUCTION - FFY 01
SR 2572	B-2864	HOGANS CREEK. REPLACE BRIDGE NO. 94		328		R(NFA) 33 RIGHT OF WAY - FFY 97 C(NFA) 295 CONSTRUCTION - FFY 98
SR 2555	Y-2951B	NEAR REIDSVILLE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 590T. INSTALL AUTOMATIC WARNING DEVICES. RAIL PASSENGER CROSSING.	•	22	25	C(RR ) FUNDED - CONSTRUCTION NOT AUTHORIZED

ROCKINGHAM COUNTY	WORK TYPE 95 96 97 98 99 00 01	FUNDED - CONSTRUCTION NOT AUTHORIZED	75 CONSTRUCTION - FFY 97	75 CONSTRUCTION - FFY 96	UNDER CONSTRUCTION
OCKIN	WORK	C(RR)	C(RR)	C(RR)	C(RR)
R	PRIOR	25			88
	LENGTH TOTAL PRIOR	. 25	52	82	88
	LENGTH				•
HIGHWAY PROGRAM	LOCATION AND DESCRIPTION	WOODROW AVENUE AT NORFOLK SOUTHERN RAILWAY CROSSING 722 569M. REVISE AUTOMATIC WARNING DEVICES.	SR 1737, MAIN ST AT NORFOLK SOUTHERN RAILWAY CROSSING 713 747X. REVISE AUTOMATIC WARNING DEVICES.	SR 1138 AT NORFOLK AND WESTERN RAILROAD CROSSING 470 160J. REVISE AUTOMATIC WARNING DEVICES.	NC 135 AT NORFOLK & WESTERN RAILWAY CROSSING 470 151K. REVISE AUTOMATIC WARNING DEVICES.
HIGHV	ID NO.	Y-3151A	2-33518	Z-3351A	z-2951C
	ROUTE/CITY	REIDSVILLE	EDEN	MADISON	MAYODAN

## VI. HIGHWAY FUNCTIONAL CLASSIFICATION CONCEPT

The Statewide Planning Branch of NCDOT conducted a functional reclassification of all North Carolina roads during the period June through November, 1992. This classification was based upon the classification criteria in the USDOT/FHWA publication entitled: "Highway Functional Classification: Concepts, Criteria and Procedures." An overview of this classification criteria is presented in **Chapter II** of this report. For additional information on the USDOT/FHWA classification concept, please contact:

Programming and Policy Branch NC Department of Transportation P.O. Box 25201 Raleigh, NC 27611

From a local perspective, a road such as US 64, which crosses the region, may be viewed as critically important to the region. From a statewide perspective, however, the function of this facility is somewhat different. From the west, US 64 enters Region 'G' at Davie County. Paralleling US 64 as it crosses Davie County and Davidson County are two important statewide routes (I-85 and I-40), both of which provide alternate east/west routes. Because of the relatively close proximity of US 64 to I-85/I-40 between Mocksville and Asheboro, this facility is classified as a minor arterial rather than a principal arterial. I-85 and I-40 are the existing parallel routes of greater importance to statewide travel.

On the other hand, NC 49 in Davidson and Randolph Counties represents a different functional characteristic. Although NC 49 does not carry as much traffic as US 64, it does connect Charlotte and Asheboro. Therefore, it is of great importance to intrastate travel. NC 49 serves as a principal arterial between Charlotte and Asheboro, and is accordingly classified as a principal arterial in Davidson and Randolph County.

East of Asheboro, US 64 takes on increased importance to statewide travel, while the significance of NC 49 diminishes. US 64 is very important in making the principle arterial link between Charlotte and Raleigh by way of Asheboro. For this reason, US 64 is classified as a principal arterial between Asheboro and Raleigh. NC 49 links Asheboro with Burlington. Since this travel corridor is served by alternate routes of statewide importance, NC 62 and US 220 - I-85/40, its importance to intrastate travel diminishes. As NC 49 leaves Region 'G' to the east, its importance to intrastate travel diminishes even more. It ends in Roxboro whose population is approximately 7,500. Accordingly, NC 49's classification falls to major collector between Ramseur and Burlington and continues this classification until it reaches Roxboro.

# Classification Comparison

The Piedmont Triad Council of Governments (PTCOG) submitted a thoroughfare map in May of 1992 to the Statewide Planning Branch, NCDOT. The map was the first attempt by PTCOG to produce a continuous system of regional thoroughfares. During the summer and fall months of 1992, NCDOT had been involved with the functional reclassification of all roads in North Carolina. Through the cooperative efforts of PTCOG and NCDOT the reclassification process was completed in December 1992 and is currently being reviewed by the USDOT. Applying a statewide perspective to the USDOT-FHWA Functional Classification criteria was fundamental in NCDOT's approach to the functional reclassification of Region 'G' road network.

## VII. REGION 'G' THOROUGHFARE PLAN

#### I-85/I-40 RECOMMENDATIONS

Because of the magnitude of the planning area size, a regional thoroughfare plan includes arterial (principal and minor) facilities only. It does not include the lower classified collector road or local road systems. These facilities, along with other lower classified facilities are included as part of a local county thoroughfare plan. The scope of this study includes the system of roads that are characteristic of regional travel. However, this study will not only analyze the existing classified arterial system, but will include facilities that are expected to become more important to regional travel within the design year 2010.

Understandably, the most important part of the Region 'G' transportation system is the I-85/I-40 corridor. This corridor is important with respect to land use development and transportation. It not only provides service to Regional through trip traffic but more importantly provides for urban commuter traffic. Once this facility is improved to 8-lanes, the question is: "What to do next?". The answer to this question is complicated by the fact that the problem with the I-85/I-40 corridor is twofold:

- \* The I-85/I-40 corridor through Guilford and Alamance counties will surpass an acceptable level of service within the design year of 2010. Once this corridor is improved to eight lanes, additional widening is impractical, due to the increase in hazardous weaving movements and right-of-way cost.
- \* For approximately forty miles, I-85/I-40 run common. In no other part of the southeastern United States do two interstates run common with each other. The result of this dual routing, funnels traffic volumes from two separate interstate facilities onto one interstate facility increasing total traffic flow. In an urban area, this situation results in increased congestion and a higher probability of accidents.

Four alternatives were considered for alleviating I-85/I-40 interstate corridor congestion problems.

# ALTERNATE 1: "Do Nothing"

An alternative to any proposed improvement is a "do nothing" option. There can be varying degrees of a "do nothing" alternative. It could range from a complete "do nothing" policy, meaning no highway improvements to the existing network, to a partial "do nothing" policy, meaning no new highways (only warranted improvements to the existing system).

The most dramatic consequence of this option is the poor operation of the interstate corridor. To understand the severity of this problem, an estimated 53% of the improved interstate facility

will be operating at a Level-of-Service F (LOS) by the design year of 2010. Effectively, travellers will experience stop-and-go progression on half of the interstate mileage in Region 'G'. Couple this with the inevitable incident along the facility and you have total grid-lock. Whether it is a stalled vehicle along the shoulder or an accident, incidents are the number one cause for highway congestion. The costs for such an option are overwhelming. The costs include:

- Increased driver and operational cost.
- Poor air quality, due to increased emissions and fuel consumption.
- Increase in the number of accidents.

On the other hand, we must address the benefit of such an option. The most foreseeable benefit gained from the do-nothing option is the elimination of improvement cost.

#### ALTERNATE 2: Southern Interstate

A second alternative is to construct on new location, a 6-lane fully controlled access facility. Basically, this would separate of I-85 and I-40 through the region where they now run common. There are numerous locations that an alignment could be located. This option focuses on the concept of separating the two interstates rather than justifying an alignment for a new facility.

The first step was to decide whether to place the new facility north or south of the existing I-85/I-40 interstate. A southern route which is referred to as the Southern Interstate was chosen because it would require less destruction to existing development and fewer number of interchanges.

The Southern Interstate would begin south of Winston Salem on the existing I-40 Bypass and run common with US 311. The new location would begin where the proposed US 311 Bypass intersects with the existing US 311 north of High Point. At this point, the Southern Interstate would progress eastward crossing I-85 north of I-85 Business. This location would require a fully directional interchange. Continuing eastward, the Southern Interstate would require interchanges at US 220, US 421, NC 62, NC 49, NC 87, and NC 54. The new facility would then tie into I-40 just North of Chapel Hill. The estimated cost of construction for such a facility is:

# CONSTRUCTION COSTS ONLY

- 6 lane divided fully controlled facility \$ 234,000,000 (approx. 65 miles on new location)
- I-85 (Greensboro) and I-40 (Chapel Hill) \$ 16,000,000 (fully directional interchanges)

Seven Partial-Clover Interchanges (US 311, US 220, US 421, NC 62, NC 49, NC 87, and NC 54) \$ 56,000,000

- Grade Separations for Existing Roadways

\$ 16,000,000

Total estimated cost of construction (excluding Right of Way cost)

\$ 322,000,000

# ALTERNATE 3: US 64/NC 49 Upgrade

I-40/I-85 are programed to be improved to 8 lanes from Greensboro to Orange County. The addition of the planned Southern Greensboro (I-85) Bypass to the I-85/I-40 facility from Greensboro to Orange County will maximize the capacity of this facility.

I-85 in Davidson County, Randolph County, and in southwest Guilford County will eventually need widening to 8 lanes; however, this will only increase the ADT on the I-85/40 roadway section between Greensboro and Orange County. Since interstate facilities serve statewide travel, as well as interstate travel, the widening of this section should be planned from a statewide perspective.

The build-out status of the I-85/40 facility between Greensboro and Orange County seems to suggest the necessity for a southern compliment (alternative 6-lane interstate facility) to the existing I-85 route. One possible option would be to upgrade NC 49 from Charlotte to Asheboro and US 64 from Asheboro to Raleigh to a 6-lane interstate (routing and geometric design standards) facility.

The planned Southern Asheboro Bypass would conveniently link these two upgraded facilities. Furthermore, an upgrading of US 501 from Pittsboro to Durham to a 6-lane interstate facility would provide a complete new route for I-85 traffic passing through Region 'G'. The new route would lessen the ADT on the I-85/40 section from Greensboro to Orange County and would possibly alleviate the need to widen I-85 in Davidson and Randolph Counties and in southwest Guilford County. This new facility should be given interstate status and routing designation from Charlotte to Durham. Perhaps it could be the new I-85, then the I-85/40 facility from Greensboro to Durham could drop the dual routing designation and become I-40 only. The old I-85 from Charlotte to Greensboro could be given a Interstate Spur routing designation such as I-585. converted NC 49/US 64/US 501 facility would probably require bypasses around Ramseur, Siler City, Pittsboro, and Asheboro. upgraded US 64, from Pittsboro to Raleigh, could be given a similar Interstate Spur routing designation, such as I-640. Again, it should be noted that interstate facility widening should be done from a statewide, rather than a regional perspective.

Noting the band of urban development along the existing interstate corridor through Region 'G' (Lexington, Thomasville, High Point, Greensboro, Burlington and Graham), suggests that a more southerly band of economic development could be encouraged. The towns and cities which stand to expand in growth from this type of improvement are: Harrisburg, Denton, Farmer, Asheboro, Ramseur, Franklinville, Siler City, Pittsboro and Apex. A new interstate could be used to manage growth, congestion, and air quality in Region 'G'. In addition, a new interstate could significantly improve travel in and through Region 'G'.

The key factor for such a project is the right-of-way (R/W) and construction costs. In this instance, we are utilizing existing 4-lane facilities having R/W widths varying from 150-200 feet. The upgrade of US 64/NC 49 to freeway (6-lane) status would require approximately 300+/- feet of R/W. This would necessitate acquiring all adjacent residential and commercial development along US 64/NC 49 R/W limits, which could be vary exorbitant. Any proposed bypass around existing urban development would lead to high R/W cost due to the proximity of a proposed bypass to the urban city limits.

#### ALTERNATE 4: Preferred Alternate

The following improvements could be coordinated and implemented as part of a two phase process. The first phase involves all the necessary geometrical improvements to achieve a multi-regional highway system. Phase two would utilize this system to augment a fully coordinated incident management and congestion management effort. (See Figure 13)

# First Priority facilities:

- NC 62: From I-85 (Archdale) to I-85 (Burlington). Improve NC 62 to a 4-lane divided facility. Additional lane improvements would require a bypass around the Town of Alamance and the straightening of a dangerous curve located 3.4 miles south of I-85.

# Second Priority facilities:

- NC 54: From I-85 (Burlington) to I-40 (Chapel Hill). Improve NC 54 to a 4-lane divided facility.

# \*\*\*\* These improvements assume the implementation of the Burlington Southern Loop into the Transportation Improvement Program.

Upgrading these facilities to 4-lane, partial controlled access standards would form a regional highway network to facilitate the future capacity problems with I-85/I-40 corridor. The interstate corridor through Guilford, Alamance, and Orange Counties do not have the necessary secondary facilities to help alleviate congestion on the interstate. These secondary facilities will support I-85/I-40 by being in close proximity and providing similar access control should the need for relieving traffic arise.

It should be emphasized that no capacity improvements be implemented until a regional incident management and congestion management feasibility study is conducted. Presently, the only facilities that would directly benefit a Regional management effort is NC 62 and NC 54. Once NC 62 is improved to higher controlled access standards, it could be used as a secondary route to I-85/I-40through Guilford County. This section of the I-85/I-40 corridor experiences the worst congestion problems within the region. When an accident occurs on this corridor, the only facility that traffic could be rerouted to is US 70. US 70 alone can not handle such a dramatic increase of traffic. This is due to the existing US 70 capacity problems and uncontrolled access. I-85 through trip traffic can be rerouted onto NC 62 if an incident occurs. This would not ease traffic flow from I-40, but would decrease the inflow traffic from I-85 (south) to help in recovering traffic progression on I-85/I-40 corridor. NC 62 would be used to shift traffic from I-85/I-40 during times of traffic congestion. Motorist information could be relayed with the use of Variable Message Signs (VMS) and/or radio broadcasts.

Once a facility has reached its capacity and all geometrical improvements have been exhausted, the question is: "what to do next". Fortunately, I-85/I-40 through Region 'G' has not reached the point of over-capacity. It will however reach 50% over-capacity by the design year 2010. If this occurs, alternative steps to building new highways must be employed.

Incident Management is one tool that can be employed by different jurisdictions to offset the congestion problems caused by accidents, stalled vehicles, or any obstacle that hamper the progression of vehicles on a highway. Even an unattended vehicle on the side shoulder of a road causes congestion do to onlookers. Through a coordinated system of traffic monitoring and emergency service vehicles, incidents can be removed from the highway in less time without additional delay to the travelling public.

Presently, there are two separate incident management programs being planned within Region 'G'. They are Greensboro and Winston Salem. The scope of such projects are confined to the urban areas and do not consider county-wide management. Ultimately, a region-wide coordinated incident management and congestion management effort would prove most beneficial for the I-85/I-40 corridor. An adjacent network would allow backed-up traffic to be rerouted onto facilities having similar access control and route destination.

Incidents contribute to as much as 70% of congestion on highways. For the capacity problems on I-85/I-40 corridor through Region 'G', there are no direct geometrical improvements that can be implemented. The addition of one or two lanes to this eight lane facility will only decrease safety and increase congestion.

Therefore, there must be system improvements made to the highway network that surrounds it. These facilities should be improved to four lane divided facilities to achieve a higher level

of controlled access and increase volume capacity. An improved network, coupled with a Regional incident and congestion management system can only lead to a positive impact on air quality, travel time delay, and travel safety for the Region.

## Principal and Minor Arterial Recommendations

The recommended Thoroughfare Plan for Region 'G' is shown in Figure 12. The corresponding Construction Plan, which highlights the recommended improvements is shown in Figure 13. Many of the current and projected inadequacies in the Region 'G' arterial system will be corrected by projects within the current TIP. These inadequacies are: (a) sharp curves which are presently delineated with chevrons, (b) lane widths less than the ideal 12 ft width, and (c) roadway sections having a volume to capacity ratio of 1.00 or more.

Listed below are suggested projects for the principal and minor arterial system in Region 'G' during the period from 1993-2010. The list excludes recommended improvements to I-85/I-40 corridor. (Please refer to I-85/I-40 Recommendations, Pg VII-1) Principal arterials serve primarily interstate and statewide travel. Minor arterials aid principal arterials by helping form a network which links larger towns and cities in the state.

# ALAMANCE COUNTY RECOMMENDATIONS

Principal Arterials: None.

#### Minor Arterials:

NC 54 - From Burlington Urban Boundary to Orange County. This facility is not anticipated of having capacity problems for the design year. Although, its function serves as a connector route from Burlington to Chapel Hill and Research Triangle Park, the vehicle per day counts do not support widening of this facility.

NC 87 - From Chatham County to Caswell County. This facility does not meet the capacity requirements for a desirable level-of-service and should be widened from 2-lanes to a 4-lane divided facility from SR 2327 (Mountain Road) to Burlington Urban Boundary.

# CASWELL COUNTY RECOMMENDATIONS

## Principal Arterials:

**US 158** - From Rockingham County to Person County. US 158 improvement is in the 1995-2001 Transportation Improvement Program as an intrastate project to be widened to a multi-lane facility

(R-2575 and R-2586). It will offer opportunities for development in North Carolina's northern most counties and provide a northern alternate route to I-40/I-85.

**US 29** - From Rockingham County to Virginia. No improvements necessary.

#### Minor Arterials:

- NC 86 From Orange County to Virginia. This facility does not meet the capacity requirements for a desirable level-of-service and should be widened from 2-lanes to a 4-lane divided facility from SR 1300 (Park Springs Road) to Virginia State Line.
- NC 87 From Alamance County to Rockingham County. No improvements necessary.

## DAVIDSON COUNTY RECOMMENDATIONS

## Principal Arterials:

- **US 52** From NCL of Lexington to Forsyth County. No additional improvements necessary.
- NC 49 From Stanly County to Randolph County. No improvements necessary.
- NC 109 From Thomasville Urban Boundary to Forsyth County. This facility does not meet the capacity requirements for a desirable level-of-service and should be widened from 2-lanes to a 3 and 4-lane facility. NC 109 serves as one of main connector routes for through trip traffic from I-40 to I-85. It is also a vitally important route for employment commuting traffic servicing the High Point Urban Area and Winston Salem. It is recommended that a 3.83 mile section from US 29/US 70 to SR 1756 (Old Greensboro) be widened to a 3-lane section to allow for left-hand-turning movements without interrupting through traffic. This could be accomplished without the need for additional right-of-way. The remaining 6.53 mile section from SR 1756 to Forsyth County should be widened to a 4-lane divided facility. (For additional information see TIP #: R-2568)

## Minor Arterials:

NC 109 - From Randolph County to Thomasville Urban Area. This facility does not meet the capacity requirements for a desirable level-of-service and should be widened from 2-lanes to a 3-lane facility from SCL of Denton to Salisbury Street (1.03 miles). This could be accomplished without the need for additional right-of-way. Additional improvements include widening NC 109 from NC 47 to Thomasville Urban Area from 2 lanes to a 4-lane divided facility. Total length of project: 14.27 miles.

- I-85 Business From ECL of Lexington to Thomasville. No capacity improvements necessary.
- US 64 From Davie County to Randolph County. No improvements necessary.

## GUILFORD COUNTY RECOMMENDATIONS

# Principal Arterials:

- US 29 From Greensboro Urban Area to Rockingham County. This facility does not meet the capacity requirements for a desirable level-of-service and should be widened from a 4-lane to a 6-lane divided facility from Greensboro Urban Area to SR 2790 (Eckerson Road 1.60 miles).
- US 220 From Randolph to Rockingham. No improvements necessary.
- **US 421** From Randolph County to Greensboro Urban Area. No improvements necessary.

#### Minor Arterials:

- **US 158** From Forsyth County to Rockingham County. No improvements necessary.
- NC 68 -- From NCL of Greensboro to Rockingham County. No improvements necessary.

# RANDOLPH COUNTY RECOMMENDATIONS

# Principal Arterials:

- US 64 From Asheboro Urban Area to Chatham County. No improvements necessary.
- US 220 From Montgomery County to Guilford County. No improvements necessary.
- **US 311** From US 220 to Archdale Urban Area. No improvements necessary. See TIP #: R-609 & R-2606 for additional information.
- **US 421** From Chatham County to Guilford County. No improvements necessary.
- NC 49 From Davidson County to Asheboro Urban Area. No improvements necessary.

## Minor Arterials:

- **US 64** From Davidson County to Asheboro Urban Area. No improvements necessary.
- NC 109 From Montgomery County to Davidson County. No improvements necessary.

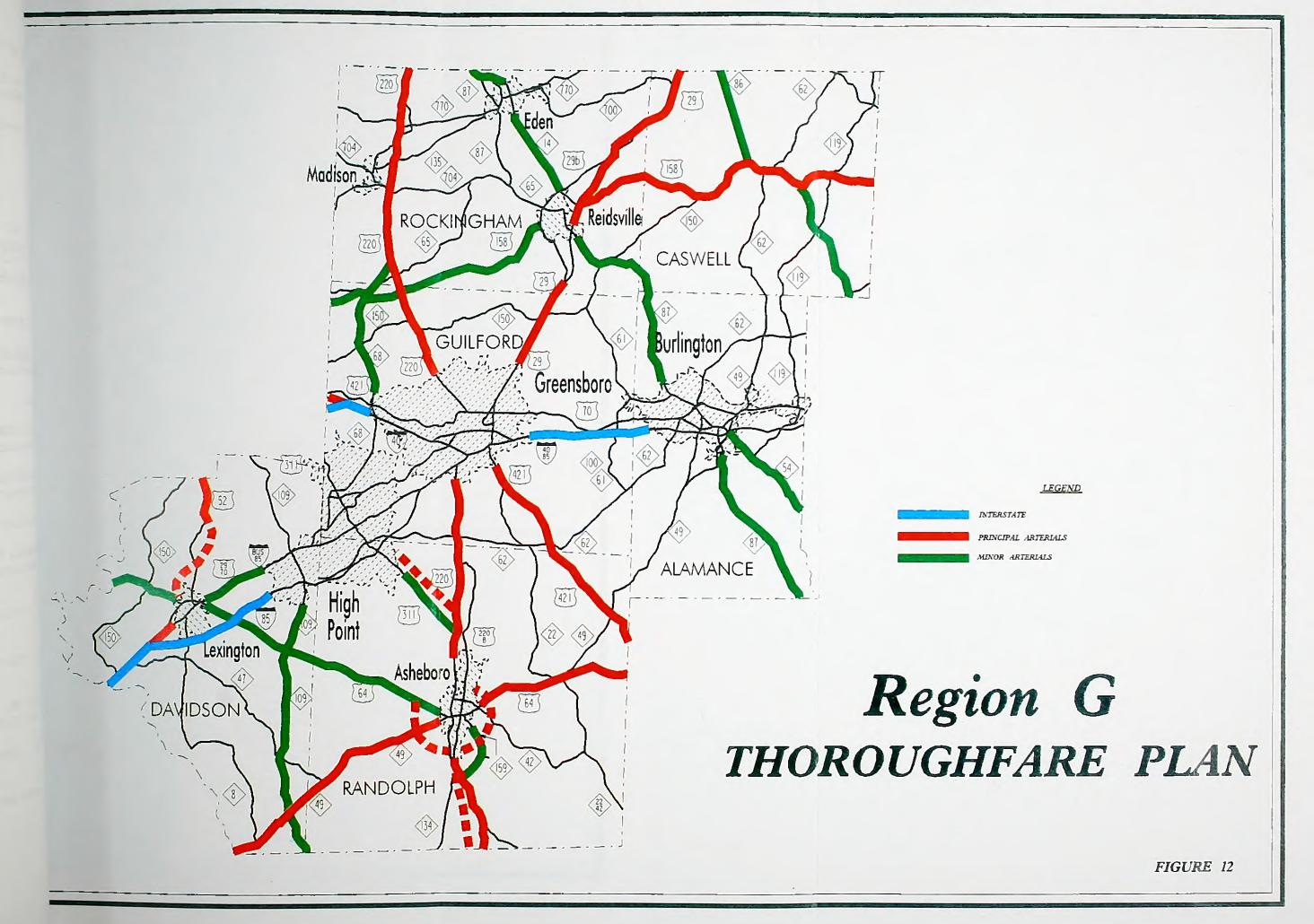
# ROCKINGHAM COUNTY RECOMMENDATIONS

## Principal Arterials:

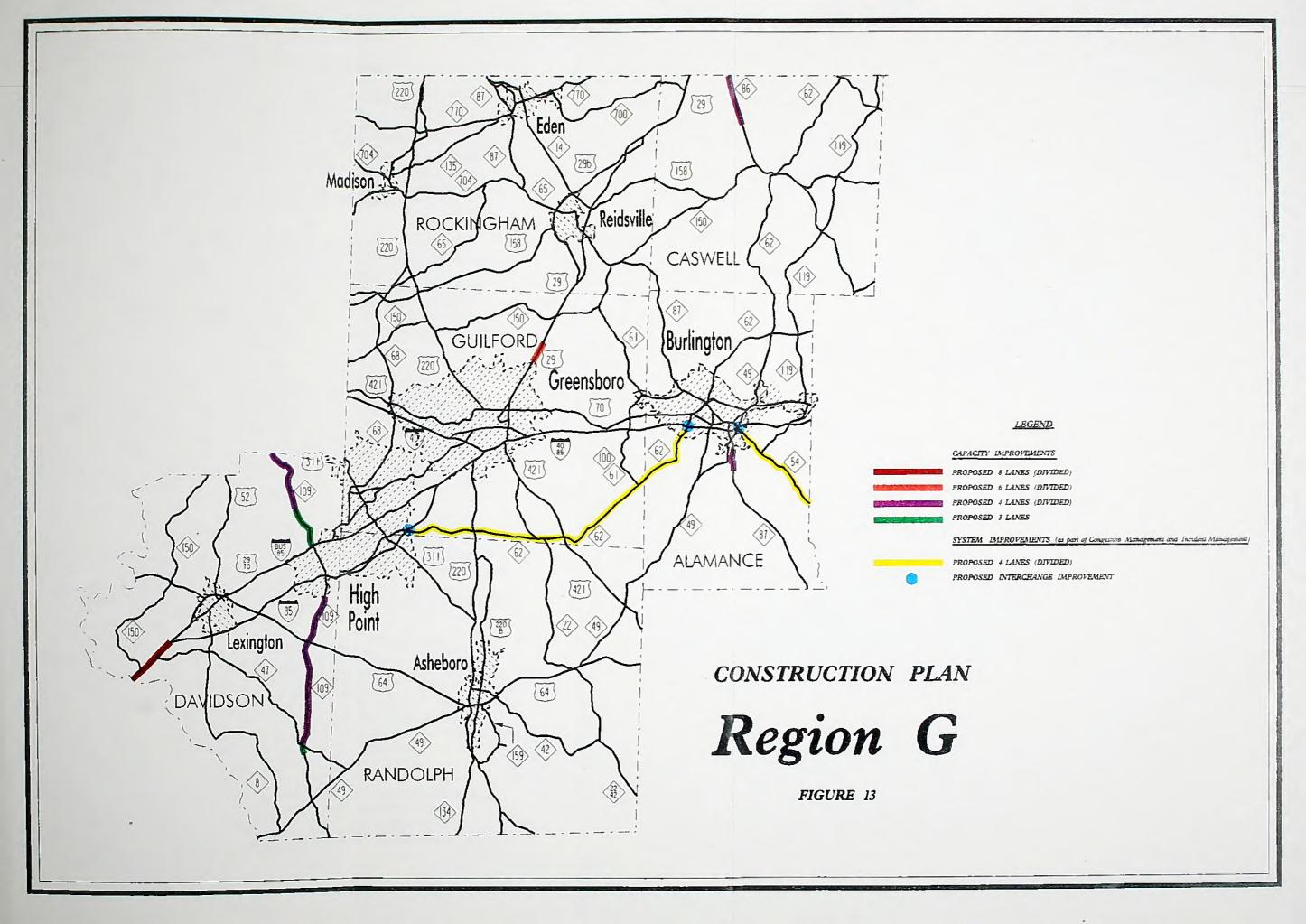
- US 29 From Guilford County to Caswell County. No improvements necessary.
- US 158 From US 29 to Caswell County. No improvements necessary.
- **US 220 -** From Guilford County to Virginia State Line. No improvements necessary.

## Minor Arterials:

- **US 158** From Guilford County to Reidsville Urban Area. No improvements necessary.
- NC 14 From Reidsville Urban Area to Eden Urban Area. No improvements necessary.
- NC 68 From Guilford County to US 220. No improvements necessary.
- NC 87 From Caswell County to Reidsville Urban Area. No improvements necessary.









## Construction Priorities and Cost Estimates

The improvements to the Region 'G' Thoroughfare Plan obviously cannot be undertaken all at once, nor should they be. The cost would be overwhelming and the need for many of the improvements is not immediate. In an effort to reflect the relative value of various improvements, an assessment has been made of the benefits that can be expected from each project and a comparison has been made to the projected costs involved. The result of this benefit-cost analysis is the development of a listing of priorities for those recommended improvements.

Priorities have been set by comparing the benefits that will result to the expected project costs. Three principal measures of benefits were used: road user cost savings, the potential for increased economic development resulting from the improvement, and the environmental impact, both positive or negative, which might result. The first measure is an actual estimate of dollar savings, while the others are estimates of the probability of the resulting change.

Reduced road user costs should result from any roadway improvement, from a simple widening to the construction of a new roadway to relieve congested or unsafe conditions. Comparisons of the existing and the proposed facility have been made in terms of vehicle operating costs, travel time costs, and accident costs. These user benefits are computed as total dollar savings over the 20 year design period using data such as project length, base year and design year traffic volumes, traffic speed, type of facility, and volume/capacity ratio.

The impact of a project on economic development potential is denoted as the probability that it will stimulate the economic development of an area by providing access to developable land and reducing transportation costs. It is a subjective estimate based on the knowledge of the proposed project, local development characteristics, and land development potential. The probability is rated on a scale from 0 (none) to 1.00 (excellent).

The environmental impact analysis considers the effect of a project on the physical, social/cultural, and economic environment. Table 11 lists the items that are considered when evaluating the impact on the environment. Many of these have been accounted for in evaluating the project with respect to user benefits, cost, and economic development potential. However, thirteen environmental factors are generally not considered in these evaluations. They are the environmental impacts of a project on: (1) air quality, (2) water resources, (3) soils and geology, (4) wildlife, (5) vegetation, (6) neighborhoods, (7) noise, (8) educational facilities, (9) churches, (10) parks and recreational facilities, (11) historic sites and landmarks, and (12) public health and safety. The summation of both positive and negative impact probabilities with respect to these factors provides a measure of the relative environmental impact of a project.

## Table 11

## Environmental Considerations

Physical Environment

Air quality
Water Resources
Soils and Geology
Wildlife
Vegetation

Social and Cultural Environment

Housing
Neighborhoods
Noise
Educational Facilities
Churches
Parks and Recreational Facilities
Public Health and Safety
National Defense
Aesthetics

Economic Environment

Businesses
Employment
Economic Development
Public Utilities
Transportation Costs
Capital Costs
Operation and Maintenance Costs

Offsetting the benefits that would be derived from any project is the cost of its construction. A new facility, despite its high projected benefits, might prove to be unjustified due to the excessive costs involved in construction. The highway costs estimated in this report are based on the average statewide construction costs for similar project types. An estimate of anticipated right-of-way costs is also included.

Recommended priorities for construction and their estimated costs (in 1993 dollars) are listed in Appendix A, Table A1. Cost estimates for widening of roads to bring them up to AASHTO design standards (Table 5) are also given in Table A1. Priorities for these improvements should be continually monitored by the Region or County and the County Division Engineer so that as additional funds become available, they can be implemented.

#### VIII. IMPLEMENTATION

There are several tools available for use by the Region to aid in the implementation of a thoroughfare plan. They are as follows:

## Subdivision Controls

The subdivision regulations require every subdivider to submit to the county planning commission a plan of the proposed subdivision. It also requires that the subdivision be constructed to certain standards. Through this process, it is possible to require the subdivision streets to conform to the thoroughfare plan and to reserve or protect necessary rights-of-way for projected roads and highways intended to become part of the thoroughfare plan. Constructing subdivision streets to adequate standards will reduce maintenance costs and simplify the transfer of the streets to the State Highway System. Appendix E outlines the recommended design standards.

## Land Use Controls

Land use regulations are an important tool regulating future land development and minimizing undesirable development along roads and highways. The land use regulatory system can improve highway safety by requiring sufficient setbacks to provide for adequate sight distances and by requiring off-street parking.

## Funding

The majority of the improvements are scheduled and funded by the Transportation Improvement Program. The Board of Transportation regularly conducts public meetings to obtain input from the public pertaining to their needs for highway improvements.

Not all roadway improvements are covered by this procedure. Nearly all secondary road work is done on a county by county basis. These funds, known as the county construction account, are used to pave unimproved roads, widen roadways, stabilize dirt roads, make minor alignment improvements, and even construct short connectors when appropriate. The Commissioners for each county within a Region are encouraged to work with the Division Engineer when the Region's priority list is developed. Many of the minor improvements recommended may be realized by using the County's construction account funds and developing a Regional priority list in conjunction with the Division Engineer for each county within the Region.

## The North Carolina Highway Trust Fund Law

The Highway Trust Fund Law was established in 1989 as a 13.5 year plan with four major goals for North Carolina's roads and highways. These goals are:

1. To complete the remaining 1,716 miles of four lane construction on the 3,600 mile North Carolina Intrastate System.

- 2. To construct a multi-lane connector in Asheville and portions of multi-lane loops in Charlotte, Durham, Greensboro, Raleigh, Wilmington, and Winston-Salem.
- 3. To supplement the secondary roads appropriation in order to pave, by 1999, 10,000 miles of unpaved secondary roads carrying 50 or more vehicles per day, and all other unpaved secondary roads by 2006.
- 4. To supplement the Powell Bill Program.

In this 18-year planning period, Region 'G' should look forward to the paving of most, if not all, of the unpaved roads on the State maintained system. Also, the municipalities in the Region that maintain roads will receive increases in their Powell Bill funds.

Table 12 shows the Powell Bill funding allotments to municipalities in Region 'G'. This money can be used for maintaining, repairing, constructing, or widening any street or public thoroughfare including bridges, drainage, curb and gutter, bikeways, and other necessary appurtenances within the corporate limits of the municipality.

For more information on the Highway Trust Fund Law, contact the Program Development Branch of NCDOT.

TABLE 12

MUNICIPALITY		POWELL BILL		TRUST FUND	TOTAL
Alamance Co. Alamance Burlington Elon College Gibsonville Graham Haw River Mebane	\$	5,610.85 902,557.64 99,244.04 85,605.65 227,707.29 41,911.99 111,436.35	\$	2,171.53 349,311.18 38,409.79 33,131.42 88,128.15 16,220.93 43,128.51	\$ 7,782.38 1,251,868.82 137,653.83 118,737.07 315,835.41 58,132.92 154,564.86
Caswell Co.		N/A		N/A	N/A
Davidson Co.  Denton  High Point  Lexington  Thomasville	1	35,100.03 ,523,415.17 391,101.73 349,244.24		13,584.54 589,597.76 151,365.63 135,165.79	48,684.58 2,113,012.93 542,467.36 484,410.03
Forsyth Co. Clemmons Kernersville Lewisville Rural Hall Tobaccoville Walkertown Winston-Salem	3	142,658.81 255,761.44 110,848.59 53,291.15 20,787.08 62,893.76	1	55,212.34 98,985.74 42,901.03 20,624.94 8,045.09 24,341.38	197,871.15 354,747.18 153,749.62 73,916.09 28,832.18 87,235.14 4,836,005.36
Guilford Co. Archdale Greensboro Jamestown	3	161,896.15 ,855,263.21 61,133.08	1	62,657.65 ,492,078.20 23,659.95	224,553.80 5,347,341.41 84,793.03
Randolph Co. Asheboro Franklinville Liberty Ramseur Randleman Seagrove Staley		356,462.48 15,767.83 58,993.47 37,205.63 67,007.69 7,890.62 8,009.13		137,959.42 6,102.52 22,831.87 14,399.46 25,933.56 3,053.86 3,099.72	494,421.90 21,870.35 81,825.33 51,605.09 92,941.25 10,944.48 11,108.85
Rockingham Co. Eden Madison Mayodan Reidsville Stoneville		350,993.57 55,889.16 56,557.30 317,437.38 24,242.45		135,842.83 21,630.43 21,889.01 122,855.79 9,382.40	486,836.40 77,519.59 78,446.31 440,293.16 33,624.84

SOURCE: 1994 North Carolina State Street Aid Allocations to Municipalities, October, 1994

APPENDICES:

## Typical Cross Sections

Typical cross sections recommended by the Thoroughfare Planning Unit are shown in Figure A1, and listed in Table A1.

Cross section "A" is illustrative for controlled access freeways. The 46 foot grassed median is the minimum median width. Wider variations could result depending upon design considerations. Slopes of 8:1 into 3 foot drainage ditches are desirable for traffic safety. Right-of-way requirements would typically vary upward from 250 feet depending upon cut and fill requirements.

Cross section "B" is typical for four lane divided highways in rural areas which may have only partial or no control of access. The minimum median width for this cross section is 30 feet, but a wider median is desirable. Design requirements for slopes and drainage would be similar to cross section "A", but there may be some variation from this depending upon right-of-way constraints.

Cross section "C", seven lane urban, and cross section "D", five lane urban, are typical for major thoroughfares where frequent left turns are anticipated as a result of abutting development or frequent street intersections.

Cross sections "E" and "F" are used on major thoroughfares where left turns and intersecting streets are not as frequent. Left turns would be restricted to a few selected intersections.

Cross section "G" is recommended for urban boulevards or parkways to enhance the urban environment and to improve the compatibility of major thoroughfares with residential areas. A minimum median width of 24 feet is recommended with 30 feet being desirable.

Typical cross section "H" is recommended for major thoroughfares where projected travel indicates a need for four travel lanes, but traffic is not excessively high, left turning movements are light, and right-of-way is restricted. An additional left turn lane probably would be required at major intersections.

Thoroughfares which are proposed to function as one-way traffic carriers would typically require cross section "I". Cross section "J" and "K" are usually recommended for minor thoroughfares since these facilities usually serve both land service and traffic service functions. Cross section "J" would be used on those minor thoroughfares where parking on both sides is needed as a result of more concentrated development.

Cross section "L" is used in rural areas or for staged construction of a wider multi-lane cross section. On some thoroughfares projected traffic volumes may indicate that two travel lanes will adequately serve travel for a considerable period of time.

The curb and gutter cross sections all illustrate the sidewalk adjacent to the curb with a buffer or utility strip between the sidewalk and the minimum right-of-way line. This permits adequate setback for utility poles. If it is desired to move the sidewalk further away from the street to provide added separation for pedestrians or for aesthetic reasons, additional right-of-way must be provided to insure adequate setback for utility poles.

Rights-of-way shown for the typical cross sections are the minimum rights-of-way required to contain the street, sidewalks, utilities, and drainage facilities. Cut and fill requirements may require either additional right-of-way or construction easements. Obtaining construction easements is becoming the more common practice for urban thoroughfare construction.

If there is sufficient bicycle traffic along the thoroughfare to justify a bicycle lane or bikeway, additional right-of-way may be required to allow for the bicycle facilities. The North Carolina Bicycle Facility and Program Handbook should be consulted for design standards for bicycle facilities.

Recommended typical cross sections for thoroughfares were derived on the basis of projected traffic, existing capacities, desirable levels of service and available right-of-way.

## Capacity Analysis

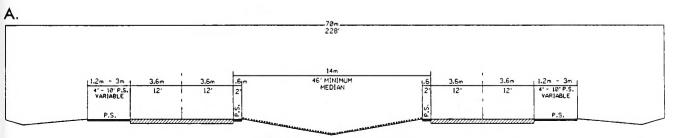
A good indication of the adequacy of the existing major street system is a comparison of the traffic volumes with the ability of the streets to move traffic freely at a desirable speed. The ability of a street to move traffic freely, safely, and efficiently with a minimum delay is controlled principally by the spacing of major devices utilized. Thus, the ability of a street to move traffic can be increased by restricting parking and turning movements, using proper sign and signal devices, and by the application of other traffic engineering techniques.

Capacity is defined as the maximum number of vehicles that have a reasonable expectation of passing over a given section of a roadway in one direction, or in both directions, during a given period under prevailing roadway and traffic conditions. The relationship of traffic volumes to the capacity of the roadway will determine the **level of service** being provided. Six levels of service have been selected to identify the conditions existing under various speed and volume conditions on a highway or street.

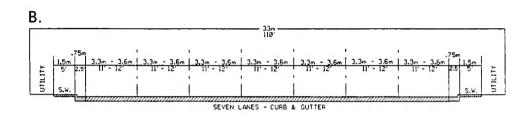
The six levels of service are illustrated in Figure A2, and they are defined on the following pages. The definitions are general and conceptual in nature, but may be applied to urban arterial levels of service. Levels of service for interrupted flow facilities vary widely in terms of both the user's perception of service quality and the operational variables used to describe them. Each chapter of the 1985 Highway Capacity Manual contains more detailed descriptions of the levels of service as defined for each facility type.

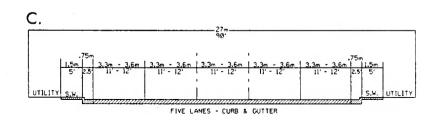
<sup>&</sup>lt;sup>1</sup> Highway Capacity manual, Special Report 209, 1985, p. 1-3.

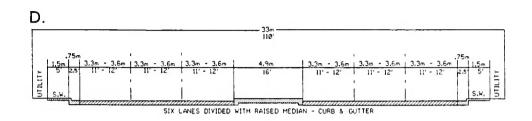
# TYPICAL THOROUGHFARE CROSS SECTIONS



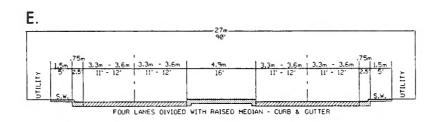
FOUR LANES DIVIDED WITH MEDIAN - FREEWAY

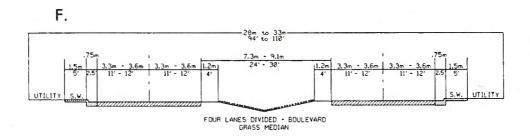


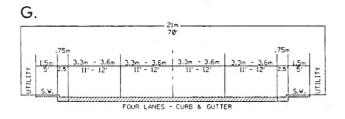


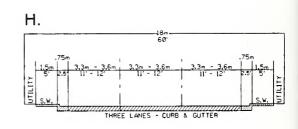


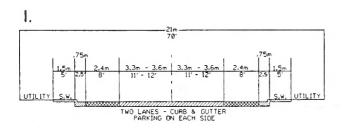
# TYPICAL THOROUGHFARE CROSS SECTIONS

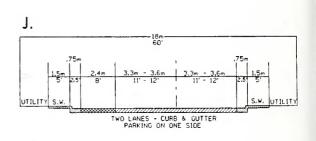












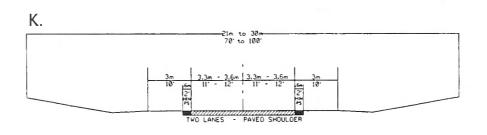


TABLE A1

RECOMMENDED   LENGTH   COST ESTINATES   S.1.001   (51.001)   LIMPORT   DEVINITION   DEVINITION										
ALS:  CROSS SECTION (miles) CONSTRUCTION ROW TOTAL BENEFITS PROBABILITY  ALS:  8-Ln 5.19 23,490 318 23,800 80,79520  6-Ln 1.60 2,560 N/A 2,560 4,91210  MASVL. B 14.27 28,550 N/A 5,060  SR 1756 I 3.80 4,940 6,286 61,90420  SR 1756 I 3.80 4,940 6,286 61,90420  B/C 5.30 3,900 200 4,100 6,14010			CONS	TRUCTION	PRIORITIES A	ND COS	F ESTIMA	res		ECONOMIC
### ### ### ### ######################	HIG	HWAY SECTION	$\forall$	LENGTH (miles)	COST ESTIMA CONSTRUCTION	TES (\$: N ROW	1,000) TOTAL	(\$1,000) BENEFITS	ENVIRON. IMPACT PROBABILTY	DEVELOPMENT POTENTIAL PROB.
H-Lin 5.19 23,490 318 23,800 80,79520 6-Lin 1.60 2,560 N/A 2,560 4,91210  MASVL. B 14.27 28,550 N/A 28,550 SR 1756 I 3.83 5.060 N/A 5,060 ORSYTH G 6.53 18,500 158 18,658 61,90420  B/G 3.80 4,940 N/A 4,940 6,28010	PRIN	CIPAL ARTERIAI	:8:							
8-Ln 5.19 23,490 318 23,800 80,79520 6-Ln 1.60 2,560 N/A 2,560 4,91210  NING I 1.03 824 N/A 824 3,40210  MASVL. B 14.27 28,550 N/A 5,060  SR 1756 I 3.83 5,060 N/A 5,060  ORSYTH G 6.53 18,500 158 18,658 +.20  B/G 3.80 4,940 N/A 4,940 6,28010  G 2.30 3,900 200 4,100 6,14010		1-85							+.30	
6-Ln 1.60 2,560 N/A 2,560 4,91210  NING I 1.03 824 N/A 824 3,40210  MASVL. B 14.27 28,550 N/A 5,060  ORSYTH G 6.53 18,500 158 18,658 +.20  B/G 3.80 4,940 N/A 4,940 6,28010  G 2.30 3,900 200 4,100 6,14010	H	WIDENING	8-Ln	5.19	23,490	318	23,800	80,795	20	.38
NING I 1.03 824 N/A 824 3,40210  MASVL. B 14.27 28,550 N/A 28,550  SR 1756 I 3.83 5,060 N/A 5,060  ORSYTH G 6.53 18,500 158 18,658 +.20  B/G 3.80 4,940 N/A 4,940 6,28010  G 2.30 3,900 200 4,100 6,14010	c	US 29	, ,	-	c C		C	(	+.30	L C
MING I 1.03 824 N/A 824 3,40210  MASVL. B 14.27 28,550 N/A 28,550 SR 1756 I 3.83 5,060 N/A 5,060 ORSYTH G 6.53 18,500 158 18,658 +.20  B/G 3.80 4,940 N/A 4,940 6,28010  G 2.30 3,900 200 4,100 6,14010	. 7	WIDENING	0-11	T . 60	7, 360	N/A	7, 560	4,912	01	. 25
HC 109 DENTON WIDENING I 1.03 824 N/A 824 3,40210  NC 109 NC 47 - THOMASVL. B 14.27 28,550 N/A 5,060 NC 47 - THOMASVL. B 14.27 28,550 N/A 5,060 SR 1756 - FORSYTH G 6.53 18,500 158 18,658 TOTAL  NC 86 WIDENING NC 87 WIDENING G 2.30 3,900 200 4,100 6,14010	MING	R ARTERIALS:								
DENTON WIDENING       I       1.03       824       N/A       824       3,402      10         NC 109       NC 47 - THOMASVL.       B       14.27       28,550       N/A       28,550      10         NC 47 - THOMASVL.       B       14.27       28,550       N/A       5,060       +.20         NC 29/70 - SR 1756       I       3.83       5,060       N/A       5,060       +.20         SR 1756 - FORSYTH       G       6.53       18,500       158       18,658       +.20         TOTAL       158       52,268       61,904      20         NC 86       WIDENING       B/G       3.80       4,940       6,280      10         NC 87       MIDENING       G       2.30       3,900       200       4,100       6,140      10		NC 109							+.30	
NC 109 NC 47 - THOMASVL. B 14.27 28,550 N/A 28,550 US 29/70 - SR 1756 I 3.83 5,060 N/A 5,060 SR 1756 - FORSYTH G 6.53 18,500 158 18,658 +.20 TOTAL  NC 86 WIDENING NC 87 NC 87 WIDENING G 2.30 3,900 200 4,100 6,14010	Э.	DENTON WIDENI		1.03	824	N/A	824	3,402	10	.25
NC 47 - THOMASVL. B 14.27 28,550 N/A 28,550 US 29/70 - SR 1756 I 3.83 5,060 N/A 5,060 SR 1756 - FORSYTH G 6.53 18,500 158 18,658 +.20 TOTAL  NC 86 WIDENING NC 87 WIDENING G 2.30 3,900 200 4,100 6,14010		NC 109								
US 29/70 - SR 1756 I 3.83 5,060 N/A 5,060 SR 1756 - FORSYTH G 6.53 18,500 158 18,658 +.20 TOTAL  NC 86 WIDENING NC 87 NC 87 WIDENING G 2.30 3,900 200 4,100 6,14010	1			14.27	28,550	N/A	28,550			
SR 1756 - FORSYTH G 6.53 18,500 158 18,658 +.20 TOTAL  NC 86 WIDENING  NC 87  NDENING  G 2.30 3,900 200 4,100 6,14010	1			3.83	5,060	N/A	2,060			
TOTAL  TOTAL  TOTAL  Z4.63 52,110 158 52,268 61,90420  NC 86  WIDENING  B/G 3.80 4,940 N/A 4,940 6,28010  NC 87  WIDENING  G 2.30 3,900 200 4,100 6,14010	1			6.53	18,500	158	18,658		+.20	
NC 86 WIDENING B/G 3.80 4,940 N/A 4,940 6,28010 NC 87 NC 87 WIDENING G 2.30 3,900 200 4,100 6,14010	4.	TOTAL		24.63	52,110	158	52,268	61,904	20	.50
WIDENING B/G 3.80 4,940 N/A 4,940 6,28010  NC 87 WIDENING G 2.30 3,900 200 4,100 6,14010		NC 86							+.20	
NC 87 WIDENING G 2.30 3,900 200 4,100 6,14010	5.	WIDENING	B/G	3.80	4,940	N/A	4,940	6,280	10	.25
	9	NC 87 WIDENING	O	2.30	3,900	200	4,100	6,140	+.30	.38

- 1. Level-of-service A describes primarily free flow operations at average travel speeds, usually about 90 percent of the free flow speed for the arterial class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.
- 2. Level-of-service B represents reasonable unimpeded operations at average travel speeds, usually about 70 percent of the free flow speed for the arterial class. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tension.
- 3. Level-of-service C represents stable operations. However, ability to maneuver and change lanes in midblock locations may be more restricted than in LOS B, and longer queues and/or adverse signal coordinations may contribute to lower average travel speeds of about 50 percent of the average free flow speed for the arterial class. Motorists will experience an appreciable tension while driving.
- 4. Level-of-service D borders on a range on which small increases in flow may cause substantial increases in approach delay and, hence, decreases in arterial speed. They may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40 percent of free flow speed.
- 5. Level-of-service E is characterized by significant approach delays and average travel speeds of one-third the free flow speed or lower. Such operations are caused by some combination of adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing.
- 6. Level-of-service F characterizes arterial flow at extremely low speeds below one-third to one-quarter of the free flow speed. Intersection congestion is likely at critical signalized locations, with high approach delays resulting. Adverse progression is frequently a contributor to this condition.

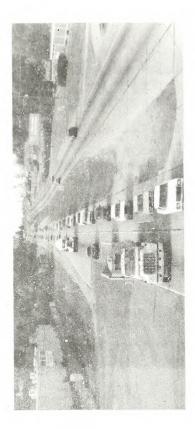
# LEVELS OF SERVICE



LEVEL OF SERVICE - D

OF SERVICE - A

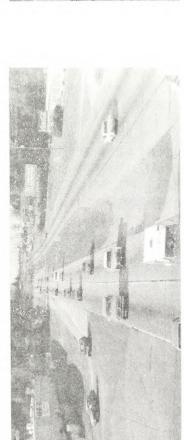
LEVEL



LEVEL OF SERVICE - E

OF SERVICE - B

LEVEL



LEVEL OF SERVICE - C



LEVEL OF SERVICE - F



# TABLE B-1 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

## ALAMANCE COUNTY

		EXISTIN	G CROSS	-SECTION	AVERAGE TRAF		RECOMN CROSS-	MENDED -SECTION
ALAMANCE COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
NC 54 NC 119 to Orange Co.	6.97	24	120	13,000	5,700	10,000	ADQ	ADQ
NC 87 Chatham Co. to SR 2327	11.07	24	60	12,500	3,000	4,900	ADQ	ADQ
SR 2327 to Urban Bound.	2.30	24	60	12,500	6,400	10,200	48-G	100
1.35m N NC 100 to 4.03m N NC 100	2.68	22	60	12,000	5,700	9,300	ADQ	ADQ
4.03m N NC 100 SR 1574	2.17	22	100	12,000	4,800	7,100	ADQ	ADQ
SR 1574 to Caswell Co.	4.18	22	60	12,000	3,400	5,100	ADQ	ADQ

# TABLE B-2 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

## CASWELL COUNTY

260		EXISTI	NG CROSS-	SECTION	AVERAGE TRAF			MENDED -SECTION
CASWELL COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
US 29  Rockingham Co.  to 2.64m N  Rockingham Co.	2.64	48	300	50,000	9,300	13,800	ADQ	ADQ
2.64m N Rock Co to SR 1354	3.02	48	340	50,000	9,300	13,800	ADQ	ADQ
SR 1354 to Virginia	0.20	45	120	50,000	12,700	18,900	ADQ	ADQ
US 158 Rockingham Co. to WCL Yanceyvi	11.02	24	60	13,000	3,300	4,900	TIP	TIP
ECL Yanceyville to NC 86	2.73	32	60/200	13,000	4,400	6,500	TIP	TIP
NC 86 to SR 1781	0.49	24	150	13,000	1,500	2,200	TIP	TIP
SR 1781 to Person Co.	7.58	20	60	11,000	1,500	2,200	TIP	TIP
				>	12			
NC 86 Orange Co. to 3.98m N Orange Co	3.98	24	60	13,000	3,300	5,400	ADQ	ADQ
3.98m N Orange to .55m N NC119	3.48	24	200	13,000	2,800	4,600	ADQ	ADQ

# TABLE B-2 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

# CASWELL COUNTY

		EXISTIN	NG CROSS	-SECTION	AVERAGE TRAF		RECOMM CROSS-	ENDED SECTION
CASWELL COUNTY: FACILITY & SECTION  (NC 86 continued)	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
.55m N NC 119 to 4.01m N NC 119	3.46	24	60	13,000	2,800	4,600	ADQ	ADQ
4.01m N NC 119 to US 158	0.63	48	60	50,000	2,800	4,600	ADQ	ADQ
NCL Yanceyville to SR 1300	3.87	24	150	13,000	4,800	8,300	ADQ	ADQ
SR 1300 to Virginia	3.80	24	150	13,000	7,000	11,500	48-B/G	ADQ
NC 87 Alamance Co to Rockingham Co.	2.05	20	60	11,000	3,400	5,500	ADQ	ADQ

# TABLE B-3 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

## DAVIDSON COUNTY

		EXISTIN	IG CROSS	-SECTION	AVERAGE TRAF		RECOMM CROSS-	ENDED SECTION
DAVIDSON COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
I-85 Rowan Co to US 29/70	0.44	48	260	54,000	40,400	85,100	96	350
US 29/70 to 2.54m N NC 150	3.12	48	210	54,000	40,000	89,300	96	350
2.54m N NC 150 to US 29/70	1.63	72	240	81,000	40,000	89,300	96	350
US 64 to SR 2031	4.39	72	980	81,000	27,900	61,000	ADQ	ADQ
SR 2031 to SCL Thomasville	2.31	72	360	81,000	33,200	72,700	ADQ	ADQ
I-85 BUS								
ECL Lexington to Thomasville	6.50	48	260	54,000	10,000	31,900	ADQ	ADQ
US 52 NCL Lexington to SR 1412	0.45	45	100	12,500	16,450		TIP	TIP
SR 1412 to 1.61m N SR 1412	1.61	22	100	11,500	16,450		TIP	TIP
1.61m N SR 1412 to 6.71m N SR 1412	5.10	60	350	50,000	20,800		ADQ	ADQ
6.71m N SR 1412 to 8.14m N SR 1412	1.43	48	400	48,000	14,900	32,600	ADQ	ADQ
8.14m N SR 1412 to Forsyth Co.	2.77	48	400	48,000	14,900	32,600	ADQ	ADQ

# TABLE B-3 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

### DAVIDSON COUNTY

			EXISTIN	G CROSS	-SECTION	AVERAGE TRAF			MENDED -SECTION
	DSON COUNTY: LITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
US 6	4								
	Davie Co. to SR 1237	6.49	24	150	13,000	5,700	10,000	ADQ	ADQ
	SR 1249 to .12m E SR 1249	0.12	36	150	13,000	5,700	10,000	ADQ	ADQ
	.12m E SR 1249 to SR 1239	0.15	42	150	13,000	5,300	7,900	ADQ	ADQ
	SR 1239 to WCL Lexington	0.07	48	150	41,700	5,300	7,900	ADQ	ADQ
	I-85 to .67m E	0.67	64	150	48,000	6,400	14,000	TIP	TIP
	.67m E I-85 to Randolph Co.	7.30	24	150	13,000	5,500	13,000	TIP	TIP
NC 4	9 Stanley Co. to Randolph Co.	8.77	24	200	13,000	3,900	5,800	TIP	TIP

## TABLE B-3 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

## DAVIDSON COUNTY

		EXISTIN	IG CROSS	-SECTION	AVERAGE TRAF			MENDED -SECTION
DAVIDSON COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
NC 109								40. 197
Randolph Co to 3.37m N Rand Co	3.37	20	100	11,000	1,400	2,200	ADQ	ADQ
3.37m N Rand Co to .45m N NC 49	0.45	24	100	13,000	3,400	6,100	ADQ	ADQ
.45m N NC 49 to SCL Denton	4.05	24	60	13,000	3,400	6,100	ADQ	ADQ
SCL Denton to Salisbury St.	1.03	20	60	10,500	6,400	14,000	36-I	ADQ
Salisbury St. to NC 47	0.19	52	60	37,100	6,400	14,000	ADQ	ADQ
NC 47 to Thomasville	14.27	24	320	13,000	6,400	14,000	48-B	ADQ
US 29/70 to SR 1756	3.83	22	60	12,000	5,900	11,700	36-I	ADQ
SR 1756 to Forsyth Co.	6.53	20	60	11,000	5,900	11,700	48-G	100

# TABLE B-4 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

## GUILFORD COUNTY

		EXISTIN	NG CROSS	-SECTION		E DAILY FFIC	RECOMM CROSS-	MENDED -SECTION
GUILFORD COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
I-85 ECL Greensboro to NC 61	10.88	48	260	54,000	54,400	104,600	TIP	TIP
NC 61 to Alamance Co.	1.55	48	260	54,000	53,100	104,600	TIP	TIP
I-40 Forsyth Co. to WCL Greensboro	4.28	48	260	54,000	54,600	105,000	TIP	TIP
US 29  Greens Urb Area to SR 2790	1.60	48	250	37,700	26,200	52,100	72-E	ADQ
SR 2790 to Rockingham Co	5.50	48	250	37,700	20,700	36,000	ADQ	ADQ
US 220 Randolph Co to 1.65m N NC 62	2.43	48	310	50,000	10,200	18,400	ADQ	ADQ
1.65m N NC 62 to SCL Greens.	4.40	48	400	50,000	10,200	18,400	ADQ	ADQ
NCL Greensboro to SR 2340	1.03	24	100	13,000	13,100	19,500	TIP	TIP
SR 2340 to SR 2252	1.08	24	150	13,000	13,100	19,500	TIP	TIP
SR 2252 to .34m N SR 2252	0.34	36	150	13,000	13,100	19,500	TIP	TIP
.34m N SR 2252 to .80m N NC150	2.86	24	150	13,000	12,400	19,500	TIP	TIP
.80m N NC 150 to NC 150	0.41	34	150	13,000	12,400	19,500	TIP	TIP

# TABLE B-4 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

## GUILFORD COUNTY

	= 100	EXISTIN	IG CROSS	-SECTION	AVERAGE TRAF			MENDED -SECTION
GUILFORD COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
(US 220 continued)				i i				
NC 150 to 2.56m N NC 150	2.56	24	150	13,000	12,300	19,500	TIP	TIP
2.56m N NC 150 to 2.66m N NC 150	0.10	33	150	13,000	11,800	18,550	TIP	TIP
2.66m N NC 150 to .10m N US158	0.20	64	150	41,700	11,800	18,550	ADQ	ADQ
.10m N US 158 to .14m N US158	0.04	33	150	13,000	6,500	11,700	TIP	TIP
.14m N US 158 to Rocking. Co	0.34	24	150	13,000	6,500	11,700	TIP	TIP
US 421								
Randolph Co to 1.11m N Rand Co	1.11	48	350	50,000	11,900	19,500	ADQ	ADQ
1.11m N Rand Co to Greensboro	8.22	48	300	41,700	15,900	28,700	ADQ	ADQ
US 158								
Forsyth Co to NC 65	2.85	24	150	13,000	7,200	13,000	TIP	TIP
NC 65 to US 220	4.35	24	100	13,000	7,200	13,000	TIP	TIP
US 220 to .59m E US 220	0.59	24	150	13,000	6,500	13,000	TIP	TIP
.59m E US 220 to Rocking. Co	0.92	24	100	13,000	6,500	13,000	TIP	TIP

# TABLE B-4 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

# GUILFORD COUNTY

		EXISTI	NG CROSS-	-SECTION	AVERAGE DAILY TRAFFIC		RECOMMENDED CROSS-SECTION	
GUILFORD COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
NC 68  NCL Greensboro to 2.61m N US 421	3.26	48	350	41,700	10,000	18,100	ADQ	ADQ
2.61m N US 421 to Rocking. Co	9.50	24	100	13,000	10,000	18,199	TIP	TIP

## TABLE B-5 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

### RANDOLPH COUNTY

		EXISTIN	IG CROSS	-SECTION	AVERAGE TRAE			MENDED -SECTION
RANDOLPH COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
US 64		-						
Davidson Co. to SR 1334	5.57	32	150	13,000	6,400	10,500	TIP	TIP
SR 1334 to SR 1318	2.43	24	150	13,000	6,400	10,500	TIP	TIP
SR 1318 to 4.7m E SR 1318	4.70	32	150	13,000	6,400	10,500	TIP	TIP
4.7m E SR 1318 to SR 1448	0.93	48	150	48,000	6,400	10,500	TIP	TIP
ECL Asheboro to .31m E Ashe. CL	0.31	64	150	37,100	15,200	24,300	ADQ	ADQ
.31m E Ashe. to	0.29	68	150	50,000	15,200	24,300	ADQ	ADQ
.6m E Ash CL to	0.51	68	100	48,000	15,200	24,300	ADQ	ADQ
1.11m E Ashe CL to 2.05m E Ashe	0.94	48	200	48,000	15,200	24,300	ADQ	ADQ
CL				> .				
2.05m E Ashe CL to SR 2605	1.21	68	80	50,000	15,200	24,300	ADQ	ADQ
SR 2605 to .91m E SR 2605	0.91	64	180	50,000	15,200	24,300	ADQ	ADQ
.91m E SR 2605 to Franklinv.	0.67	24	100	13,000	12,300	24,300	TIP	TIP
ECL Ramseur to Chatham Co.	5.40	24	60	13,000	5,900	8,600	TIP	TIP

# TABLE B-5 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

## RANDOLPH COUNTY

7.2		EXISTI	NG CROSS	-SECTION		E DAILY FFIC	RECOMMENDED CROSS-SECTION	
RANDOLPH COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
US 220  Montgomery Co.  to NC 705	2.10	24	150	13,000	11,200	22,300	TIP	TIP
NC 705 to .41m N NC 705	0.41	44	60	13,000	11,200	22,300	TIP	TIP
.41m N NC 705	2.17	24	150	13,000	11,200	22,300	TIP	TIP
SR 1129 to .44m N SR 1129	0.44	40	150	13,000	11,200	22,300	TIP	TIP
.44m N SR 1129 to 2.62m N SR 1129	2.18	24	150	13,000	11,200	22,300	TIP	TIP
2.62m N SR 1129 to .19m N NC159	0.28	48	150	13,000	11,200	22,300	TIP	TIP
.19m N NC 159 to .52m N NC159	0.33	24	150	12,500	13,700	27,300	TIP	TIP
.52m N NC 159	0.16	36	160	12,500	13,700	27,300	TIP	TIP
.68m N NC 159 to SCL Ashebr.	4.01	48	310	41,700	13,700	27,300	TIP	TIP
NCL Asheboro to SR 2269	1.26	48	150	50,000	22,100	48,400	ADQ	ADQ
SR 2269 to 1.38 N US 311	6.29	48	370	50,000	22,100	48,400	ADQ	ADQ
1.38m N US 311 to US 220 Bus	4.31	48	380	50,000	10,200	18,400	ADQ	ADQ
US 220 Bus to Guilford Co.	1.99	48	310	50,000	10,200	18,400	ADQ	ADQ

# TABLE B-5 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

### RANDOLPH COUNTY

		EXISTIN	IG CROSS	-SECTION	AVERAGE TRAF			MENDED -SECTION
RANDOLPH COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
US 311 US 220 to Archdale	7.03	34/22	100	12,000	8,100	13,300	TIP	TIP
US 421 Chatham Co. to .74m N Chat. Co	0.74	20	60	10,500	4,700	7,000	TIP	TIP
.74m N Chat. Co to Guilford Co.	9.32	48	350	50,000	8,700	12,900	ADQ	ADQ
NC 49  Davidson Co to .09m E Davd Co.	0.09	30	200	13,000	3,600	5,200	TIP	TIP
.09m E Davd Co. to 1.74m E Davd	1.65	48	100	50,000	3,600	5,200	ADQ	ADQ
1.74m E Davd Co to .49m E NC 47	0.93	48	200	50,000	3,600	5,200	ADQ	ADQ
.49m E NC 47 to 2.96m E NC 47	2.47	48	100	50,000	3,600	5,200	TIP	TIP
2.96m E NC 47 to 3.5m E NC 47	0.54	48	200	50,000	5,400	7,900	TIP	TIP
3.5m E NC 47 to 12.13m E NC 47	8.63	24	200	13,000	5,400	7,900	TIP	TIP
12.13m E NC 47 to SR 1323	0.63	48	150	50,000	5,400	7,900	TIP	TIP
NC 109  Montgomery Co.  to Davidson Co	0.53	20	100	11,000	1,400	2,200	ADQ	ADQ

# TABLE B-6 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

# ROCKINGHAM COUNTY

gace	-		EXISTIN	G CROSS	-SECTION	AVERAGE TRAF		RECOMN CROSS-	MENDED SECTION
	INGHAM COUNTY: LITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
US 2	9 Guilford Co to US 29 Business	1.43	48	250	50,000	19,500	32,000	ADQ	ADQ
	US 158 to Caswell Co	10.33	48	330	50,000	19,500	32,000	ADQ	ADQ
US 1	58 Guilford Co. to WCL Reidsville	13.86	24	100	13,000	4,200	6,200	TIP	TIP
	US 29 to .16m E US 29	0.16	48	200	41,700	3,900	6,800	ADQ	ADQ
	.16m E US 29 to Caswell Co.	6.68	24	60	13,000	3,900	6,800	TIP	TIP
US 2	20 Guilford Co. to .10m N Guil. Co	0.10	22	150	12,000	6,500	11,700	TIP	TIP
	.10m N Guil. Co to NC 68	2.35	24	150	13,000	6,500	11,700	TIP	TIP
	NC 68 to .77m N NC 68	0.77	48	150	48,000	14,600	24,000	TIP	TIP
	.77m N NC 68 to 5.7m N NC 68	4.83	24	150	41,700	14,600	24,000	ADQ	ADQ
	5.7m N NC 68 to US 220 Bus	0.63	48	200	41,700	8,000	13,100	ADQ	ADQ
	NC 770 to 2.69m N NC 770	2.69	24	200	13,000	7,800	12,800	TIP	TIP
	2.69m N NC 770 to US 220 Bus	1.58	24	140	13,000	7,800	12,800	TIP	TIP

# TABLE B-6 THOROUGHFARE PLAN STREET TABULATION AND RECOMMENDATIONS

## ROCKINGHAM COUNTY

		EXISTIN	NG CROSS	-SECTION	AVERAGE TRAF		RECOMM CROSS-	MENDED -SECTION
ROCKINGHAM COUNTY: FACILITY & SECTION	DIST (mi)	RDWY (ft)	ROW (ft)	CAPACITY (vpd)	1991 (vpd)	2010 (vpd)	RDWY (ft)	ROW (ft)
US 220 Bus to .27m N US 220Bu	0.27	24	150	13,000	7,800	12,800	TIP	TIP
.27m N US 220Bu Virginia	0.79	22	150	12,000	7,800	12,800	TIP	TIP
NC 14 Reidsville to Eden	6.94	24	150	13,000	10,100	20,100	TIP	TIP
NC 68  Guilfiord Co to US 220	1.79	24	100	13,000	6,800	10,100	ADQ	ADQ
NC 87 Caswell Co to NC 150	3.08	20	60	11,000	6,300	10,300	TIP	TIP
NC 150 to .10m W NC 150	0.10	42	60	13,000	6,300	10,300	TIP	TIP
.10m W NC 150 to .2m W NC 150	0.10	38	60	13,000	6,300	10,300	TIP	TIP
.2m W NC 150 to	0.25	68	60	41,700	6,300	10,300	TIP	TIP
.25m W NC 150 - 1.02m W NC 150	0.77	20	60	11,000	6,300	10,300	TIP	TIP
1.02m W NC 150 Reid. Urb. Bdry	3.83	24	100	12,500	6,300	10,300	TIP	TIP

				TABLE C1				
		HISTO	RICAL AND	PROJECTE EGION "G"		ION		
COUNTY	1940	1950	1960	1970	1980	1990	2000	2010
ALAMANCE	57,427	71,220	85,647	96,502	99,319	108,213	115,886	121,378
CASWELL	20,032	20,870	19,912	19,055	20,705	20,697	20,644	20,088
DAVIDSON	53,377	62,244	79,493	95,623	113,162	126,677	140,195	150,357
GUILFORD	153,916	191,057	246,520	288,645	317,154	347,420	373,913	395,359
RANDOLPH	44,554	50,804	61,497	76,358	91,300	106,546	122,370	136,035
ROCKINGHAM	57,898	64,816	69,629	72,402	83,426	86,064	88,345	88,461
REGION 'G'	387,204	461,011	562,698	648,585	725,066	795,617	861,353	911,678

	Motor Ve	ehicle Registrat	ions
County	Vehicles Reg: 15 DEC 86	istered as of 13 JAN 92	Yearly Growth Rate percent
Alamance	91,695	100,518	1.85
Caswell	15,373	16,988	2.02
Davidson	95,862	118,895	4.40
Guilford	278,444	299,976	1.50
Randolph	89,564	100,725	2.38
Rockingham	68,888	76,818	2.20

TABLE C2						
GUILFORD Co. VEHICLE REGISTRATION						
YEAR	VEHICLES REGISTERED	POPULATION	PERSONS PER <u>VEHICLE</u>			
1940 1950 1960 1970 1980 1990 *2000	42,330 65,267 109,800 180,690 251,903 302,868 351,534 390,260	153,916 1910579 246,520 288,645 317,154 347,420 373,913 395,359	3.64 2.93 2.25 1.60 1.26 1.15 1.06 1.01			

<sup>\*</sup> Projected statistics supplied by North Carolina State Data Center and North Carolina Department of Motor Vehicles.

TABLE C3 NORTH CAROLINA VEHICLE REGISTRATION PERSONS PER VEHICLES YEAR REGISTERED POPULATION VEHICLE 5.52 647,242 3,571,623 1940 4,061,929 3.54 1,147,233 1950 1,704,203 4,556,155 2.67 1960 2,742,673 5,084,411 1.85 1970 5,880,095 3,896,544 1.51 1980

6,628,637

7,399,683

8,070,889

1.34

1.08

0.98

4,962,268

6,851,590

8,235,600

1990

\*2000 \*2010

<sup>\*</sup> Projected statistics supplied by North Carolina State Data Center and North Carolina Department of Motor Vehicles.

#### APPENDIX D

#### RECOMMENDED SUBDIVISION ORDINANCES

#### Definitions

### I. Streets and Roads:

### A. Rural Roads

- 1. Principal Arterial A rural link in a highway system serving travel, and having characteristics indicative of substantial statewide or interstate travel and existing solely to serve traffic. This network would consist of Interstate routes and other routes designated as principal arterials.
- 2. Minor Arterial A rural roadway joining cities and larger towns and providing intrastate and inter-county service at relatively high overall travel speeds with minimum interference to through movement.
- 3. Major Collector A road which serves major intra-county travel corridors and traffic generators and provides access to the Arterial system.
- 4. Minor Collector A road which provides service to small local communities and traffic generators and provides access to the Major Collector system.
- 5. Local Road A road which serves primarily to provide access to adjacent land, over relatively short distances.

### B. Urban Streets

- 1. Major Thoroughfares Major thoroughfares consist of Interstate and other freeway, expressway, or parkway roads, and major streets that provide for the expeditious movement of high volumes of traffic within and through urban areas.
- 2. Minor Thoroughfares Minor thoroughfares collect traffic from local access streets and carry it to the major thoroughfare system. Minor thoroughfares may be used to supplement the major thoroughfare system by facilitating minor through-traffic movements and may also serve abutting property.
- Local Street A local street is any street not on a higher order urban system and serves primarily to provide direct access to abutting land.

# C. Specific Type Rural or Urban Streets

- 1. Freeway, expressway, or parkway Divided multilane roadways designed to carry large volumes of traffic at high speeds. A freeway provides for continuous flow of vehicles to selected crossroads only by way of interchanges. An expressway is a facility with full or partial control of access and generally with grade separations at major intersections. A parkway is for non-commercial traffic, with full or partial control of access.
- 2. Residential Collector Street A local street which serves as a connector street between local residential streets and the thoroughfare system. Residential collector streets typically collect traffic from 100 to 400 dwelling units.
- 3. Local Residential Street Cul-de-sacs, loop streets less than 2,500 feet in length, or streets less than one mile in length that do not connect thoroughfares, or serve major traffic generators, and do not collect traffic from more than 100 dwelling units.
- 4. Cul-de-sac A short street having only one end open to traffic and the other end being permanently terminated and a vehicular turn-around provided.
- 5. Frontage Road A road that is parallel to a partial or full access controlled facility and provides access to adjacent land.
- 6. Alley A strip of land, owned publicly or privately, set aside primarily for vehicular service access to the back side of properties otherwise abutting on a street.

### II. Property

## A. Building Setback Line

A line parallel to the street in front of which no structure shall be erected.

#### B. Easement

A grant by the property owner for use by the public, a corporation, or person(s), of a strip of land for a specific purpose.

#### C. Lot

A portion of a subdivision, or any other parcel of land, which is intended as a unit for transfer of ownership or for development or both. The word "lot" includes the words "plat" and "parcel".

#### TIT. Subdivision

### A. Subdivider

Any person, firm, corporation or official agent thereof, who subdivides or develops any land deemed to be a subdivision.

## B. Subdivision

All divisions of a tract or parcel of land into two or more lots, building sites, or other divisions for the purpose, immediate or future, of sale or building development and all divisions of land involving the dedication of a new street or change in existing streets; provided, however, that the following shall not be included within this definition nor subject to these regulations: (1) the combination of portions of previously platted lots where the total number of lots is not increased and the resultant lots are equal to or exceed the standards contained herein; (2) the division of land into parcels greater than ten acres where no street right-of-way dedication is involved; (3) widening of open streets; (4) the division of a tract in single ownership whose entire area is no greater than two acres into not more than three lots, where no street right of way dedication is involved and where the resultant lots are equal to or exceed the standards contained herein.

## C. Dedication

A gift, by the owner, of his property to another party without any consideration being given for the transfer. The dedication is made by written instrument and is completed with an acceptance.

## D. Reservation

Reservation of land does not involve any transfer of property rights. It constitutes an obligation to keep property free from development for a stated period of time.

#### APPENDIX E

### DESIGN STANDARDS

### I. Streets and Roads

The design of all roads within Region 'G' shall be in accordance with the accepted policies of the North Carolina Department of Transportation, Division of Highways, as taken or modified from the American Association of State Highway Officials' (AASHTO) manuals.

The provision of street rights-of-way shall conform and meet the recommendations of the Thoroughfare Plan, as adopted by Region 'G' and the North Carolina Department of Transportation.

The proposed street layout shall be coordinated with the existing street system of the surrounding area. Normally the proposed streets should be the extension of existing streets if possible.

The urban planning area shall consist of that area within the urban planning boundary as depicted on the mutually adopted Thoroughfare Plan. The rural planning area shall be that area outside the urban planning boundary.

### A. Street Widths

Width for street and road classifications other than local shall be as required by the Thoroughfare Plan. Width of local roads and streets shall be as follows:

#### 1. Local Residential-

Curb and Gutter section: 26 feet, face to face of curb Shoulder section: 20 feet to edge of pavement, 4 foot shoulders

## 2. Residential Collector-

Curb and Gutter section: 34 feet, face to face of curb Shoulder section: 20 feet to edge of pavement, 6 foot shoulders

## B. Right-of-Way Widths

Right-of-way (ROW) widths shall not be less than the following and shall apply except in those cases where ROW requirements have been specifically set out in the Thoroughfare Plan.

# 1. Rural Minimum ROW

a.	Princ:	iple Arteri	al			
	Fre	eeways		3 !	50	ft.
	Otl	ner		2	00	ft.
b.	Minor	Arterial		1	00	ft.
c.	Major	Collector		1	00	ft.
d.	Minor	Collector		;	80	ft.
e.	Local	Road		* (	60	ft.

### 2. Urban

a. Major Thoroughfare other than Freeway and Expressway

b. Minor Thoroughfarec. Local Street70 ft.60 ft.

d. Cul-de-sac \*\* Variable

The subdivider will only be required to dedicate a maximum of 100 feet of right-of-way. In cases where over 100 feet of right-of-way is desired, the subdivider will be required only to reserve the amount in excess of 100 feet. On all cases in which right-of-way is sought for a fully controlled access facility, the subdivider will only be required to make a reservation. It is strongly recommended that subdivisions provide access to properties from internal streets, and that direct property access to major thoroughfares, principle and minor arterials, and major collectors be avoided. Direct property access to minor thoroughfares is also undesirable.

90 ft.

A partial width right-of-way, not less than sixty feet in width may be dedicated when adjoining undeveloped property that is owned or controlled by the subdivider; provided that the width of a partial dedication be such as to permit the installation of such facilities as may be necessary to serve abutting lots. When the said adjoining property is subdivided, the remainder of the full required right-of-way shall be dedicated.

- \* The desirable minimum right-of-way (ROW) is 60 ft. If curb and gutter is provided, 50 feet of ROW is adequate on local residential streets.
- \*\* The ROW dimension will depend on radius used for vehicular turn-around. Distance from edge of pavement of turn-around to ROW should not be less than distance from edge of pavement to ROW on street approaching turnaround.

#### C. Geometric Characteristics

The standards outlined below shall apply to all subdivision streets proposed for addition to the State Highway System or Municipal Street System. In cases where a subdivision is sought adjacent to a proposed thoroughfare corridor, the requirements of dedication and reservation discussed under Right-of-Way shall apply.

1. Design Speed - The design speed for a roadway should be a minimum of 5 mph greater than the posted speed limit. The design speeds for subdivision type streets shall be as follows:

DESIGN SPEEDS					
		Minimum Speed			
Facility Type	Desirable Speed	Level	Rolling	Mountain	
Rural					
Minor Collector Roads	60	50	40	30	
Local roads, including Residential Collectors and Local Residential	50	* 50	*40	*30	
Urban Major Thoroughfares, other than Freeway,	60	50	50	50	
Expressway, or Parkway Minor Thoroughfares	60	50	40	40	
Local Streets	40	**40	**30	**30	

<sup>\*</sup> Based on projected annual average daily traffic of 400-750. In cases where road will serve a limited area and small number of dwelling units, minimum design speeds can be reduced further.

### 2. Maximum and Minimum Grades

a. The maximum vertical grades shall be as follows:

MAXIMUM VERTICAL GRADE %					
	Terrain				
Design Speed	Level	Rolling	Mountain		
60 50 40 30 20	4 5 6 	5 6 7 9	6 7 8 10 12		

- b. A minimum grade for curbed streets should not be less than 0.5%.
- c. Grades for 100 feet each way from intersections (measured from edge of pavement) should not exceed 5%.

<sup>\*\*</sup> Based on projected annual average daily traffic of 50-250.

- d. For streets and roads with projected annual average daily traffic less than 250, short grades less than 500 feet long may be 50% greater than the value in the above table.
- 3. Minimum Sight Distance In the interest of public safety, no less than the minimum sight distance applicable shall be provided. Vertical curves that connect each change in grade shall be provided and calculated using the following parameters:

SIGHT DISTANCE					
Design Speed, MPH	30	40	50	60	
Stopping Sight Distance: Minimum (ft.) Desirable Minimum (ft.)	200 200	275 325	400 475	525 650	
Minimum K* Value for: Crest Curve Sag Curve	30 40	80 70	160 110	310 160	
Passing Sight Distance: Minimum Passing Distance for 2 lanes, in feet	1,035	1,460	1,915	2,380	

\* K is a coefficient by which the algebraic difference in grade may be multiplied to determine the length in feet of the vertical curve which will provide the desired sight distance.

(General practice calls for vertical curves to be multiples of 50 feet. Calculated lengths shall be rounded up in each case.)

Sight distance provided for stopped vehicles at intersections should be in accordance with "A Policy on Geometric Design of Highways and Streets, 1984".

4. The "Super-elevation Table" below shows the maximum degree of curve and related maximum super-elevation for design speeds. The maximum rate of roadway super-elevation (e) for rural roads with no curb and gutter is 0.08. The maximum rate of super-elevation for urban streets with curb and gutter is 0.06, with 0.04 being desirable.

SUPER-ELEVATION TABLE					
Design	Maximum	Minimum	Max. Deg.		
Speed	e*	Radius ft.	of Curve		
30	0.04	302	19 00'		
40	0.04	573	10 00'		
50	0.04	955	6 00'		
60	0.04	1,528	3 45'		
30	0.06	273	21 00'		
40	0.06	509	11 15'		
50	0.06	849	6 45		
60	0.06	1,380	4 15'		
3 0	0.08	252	22 45'		
4 0	0.08	468	12 15'		
5 0	0.08	764	7 30'		
6 0	0.08	1,206	4 45'		

<sup>\*</sup> e = rate of roadway super-elevation, foot per foot

## D. Intersections

- 1. Streets shall be laid out so as to intersect as nearly as possible at right angles, and no street should intersect any other street at an angle less than sixty-five (65) degrees.
- 2. Property lines at intersections should be set so that the distance from the edge of pavement, of the street turnout, to the property line will be at least as great as the distance from the edge of pavement to the property line along the intersecting streets. This property line can be established as a radius or as a sight triangle. Greater offsets from the edge of pavement to the property lines will be required, if necessary, to provide sight distance for the stopped vehicle on the side street.
- 3. Offset intersections are to be avoided. Intersections which cannot be aligned should be separated by a minimum length of 200 feet between survey centerlines.

## E. Cul-de-sacs

Cul-de-sacs shall not be more than seven hundred (700) feet in length. The distance from the edge of pavement on the vehicular turnaround to the right-of-way line should not be less than the distance from the edge of pavement to right-of-way line on the street approaching the turnaround. Cul-de-sacs should not be used to avoid connection with an existing street or to avoid the extension of an important street.

## F. Alleys

- 1. Alleys shall be required to serve lots used for commercial and industrial purposes except that this requirement may be waived where other definite and assured provision is made for service access. Alleys shall not be provided in residential subdivisions unless necessitated by unusual circumstances.
- 2. The width of an alley shall be at least twenty (20) feet.
- 3. Dead-end alleys shall be avoided where possible, but if unavoidable, shall be provided with adequate turnaround facilities at the dead-end as may be required by the Planning Board.
- G. Permits For Connection To State Roads

An approved permit is required for connection to any existing state system road. This permit is required prior to any construction on the street or road. The application is available at the office of the District Engineer of the Division of Highways.

H. Offsets To Utility Poles

Poles for overhead utilities should be located clear of roadway shoulders, preferably a minimum of at least 30 feet from the edge of pavement. On streets with curb and gutter, utility poles shall be set back a minimum distance of 6 feet from the face of curb.

#### I. Wheelchair Ramps

All street curbs being constructed or reconstructed for maintenance purposes, traffic operations, repairs, correction of utilities, or altered for any reason, shall provide wheelchair ramps for the physically handicapped at intersections where both curb and gutter and sidewalks are provided and at other major points of pedestrian flow.

Wheelchair ramps and depressed curbs shall be constructed in accordance with details contained in the Department of Transportation, Division of Highways, publication entitled, "Guidelines, Curb Cuts and Ramps for Handicapped Persons."

- J. Horizontal Width on Bridge Deck
- 1. The clear roadway widths for new and reconstructed bridges serving 2 lane, 2 way traffic should be as follows:
  - a. Shoulder section approach
    - i. Under 800 ADT design year:

Minimum 28 feet width face to face of parapets of rails or pavement width plus 10 feet, whichever is greater.

ii. 800 - 2000 ADT design year:

Minimum 34 feet width face to face of parapets of rails or pavement width plus 12 feet, whichever is greater.

iii. Over 2000 ADT design year:

Minimum width of 40 feet, desirable width of 44 feet width face to face of parapets of rails.

- b. Curb and gutter approach
  - i. Under 800 ADT design year:

Minimum 24 feet face to face of curbs.

ii. Over 800 ADT design year:

Width of approach pavement measured face to face of curbs.

Where curb and gutter sections are used on roadway approaches, curbs on bridges shall match the curbs on approaches in height, in width of face to face of curbs, and in crown drop. The distance from face of curb to face of parapet or rail shall be 1'6" minimum, or greater if sidewalks are required.

- 2. The clear roadway widths for new and reconstructed bridges having 4 or more lanes serving undivided two-way traffic should be as follows:
  - a. Shoulder section approach Width of approach pavement plus width of usable shoulders on the approach left and right. (Shoulder width 8' minimum, 10' desirable.)
  - b. Curb and gutter approach Width of approach pavement measured face to face of curbs.

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